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Engineering Index Service

WHAT'S BACK OF WIRE ROPE IS VITAL



THE OLDEST MEMBER

TELLS WHY

WHY do I insist on American Steel & Wire Company Wire Rope? "Well—I have been here a long, long time—and it has been a part of my job to get the most out of every foot of rope we purchase. In the beginning we experimented quite a bit—trying this and trying that. But—it didn't take us long to find out that one brand cost us less to use—was always uniformly dependable—and stood up better under the hardest tests we could give it. On top of that we got real service whenever we needed it—and were always certain of getting exactly the right rope for the work it had to do. Take a tip from me—whether it's here, or anywhere else, you're bound to be right if you specify American Steel & Wire Company Wire Rope."



AMERICAN STEEL & WIRE COMPANY WIRE ROPE

1831



1933

AMERICAN STEEL & WIRE COMPANY

208 South La Salle Street, Chicago
94 Grove Street, Worcester

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

Empire State Bldg., New York
First National Bank Bldg., Baltimore

Pacific Coast Distributors: Columbia Steel Company, Russ Building, San Francisco

Export Distributors: United States Steel Products Company, New York

New Deal Proposed by K. C. S. Wage Plan

The much-discussed plan of the Kansas City Southern for determining the compensation of conductors and locomotive engineers has been placed in effect by that road. The management has, however, suspended the application of the new rates of pay and of the new rules covering working conditions until March 1, 1934, out of deference to the wish of the President of the United States that nothing be done at this time which might interfere in any way with the movement to bring about a revival of business and an increase in employment and purchasing power. Postponement of the application of the plan may do some good and will certainly do relatively little harm. Its abandonment, however, would constitute a retreat from a sensible and business-like proposal to deal realistically with an acute problem of employee compensation and employee relations which, in the interest of railway employees no less than that of railway owners, ought to be faced squarely in the light of present conditions.

What New Plan Will Do

What does the "K. C. S. Wage Plan" propose to do? First of all, it provides that the affected train and engine service employees shall be paid, as is other railroad labor, for the time that they work and on no other basis, the rate of pay being such that, as a practical matter, they will receive more pay than they are now receiving. This is quite different from the provisions of the agreements formerly in effect on the Kansas City Southern and still in effect on most other railways, which require that the employees be paid either for the time that they work or for the mileage which they make, the applicable basis in each instance being that which produces the greater pay. Also unlike the K. C. S. plan, the old agreements recognize eight hours as the basic day in transportation service, not to place an outside limit on the hours of work, but to provide a convenient point of change from straight

time to overtime at 50 per cent more than straight pay.

In one stroke, the K. C. S. plan abolishes the scores of restrictions and penalties which have grown up out of this dual basis of payment, and especially out of the mileage basis of pay, restrictions and penalties which have very little to do with the amount of time the crew is employed and which restrict the kind of work a crew may do during its day's work without extra compensation or penalties for the doing of that work. There are several hundred such restrictions on the Kansas City Southern as on other railways, many of them designed to protect employees from conditions which no longer exist. Some of the most burdensome of them are the classification and conversion rules, the terminal switching and terminal detention rules, the starting time rules, and so on.

Entirely aside from the fact that these rules are complex and difficult of interpretation, making for constant disputes between the management and the employees, they contain a large number of provisions which prevent a reasonable use of the services of the employees, and require the payment, when certain services are absolutely necessary, of compensation at penal or arbitrary rates of pay. The Kansas City Southern found that, under the old agreements, the rendering of efficient and economical service to the railroad's patrons was either extremely difficult or prohibitively expensive. Therefore, it has met the situation boldly by proposing a plan of compensation free from such inhibitions.

The details of the K. C. S. plan were published in the *Railway Age* of July 15, pages 127-31, and these will not be repeated here. Suffice it to say that, in the new plan, there is no mention of miles run as a basis for payment. There is an absence of any reference to what is known as a "basic day." There is no punitive overtime rate. The old variety of rates for road freight conductors and engineers, based on the class of service

in which they are engaged, is done away with. Such burdensome rules as the terminal detention and terminal switching rules are conspicuous by their absence, although a number of rules designed to protect employees rather than to penalize the management are retained in somewhat modified form. The plan does provide that the men, excepting passenger conductors who are paid on a trip basis, are to be paid for the hours worked by them, with a minimum allowance for the first three to six hours, depending upon the class of service, and straight pay by the hour for time beyond the initial period. When so employed, they are to perform such services as they are called upon to perform, with few classifications or restrictions and with no penalties.

Specific Situations Considered

How have specific situations been met under the old agreements and how would they be met by the new plan? Here is one example of the requirement under the old agreements of penalty pay because of the classification and conversion rules. The crew of a north-bound through freight train was required, after pulling in on one of the yard tracks at Heavener, Okla., to set the 16 head cars over on another track before taking their engine to the roundhouse. For the ten minutes that it took to pull these 16 cars out of one track and back them in on an adjoining track, the railway was required to pay each member of the train and engine crew four hours' pay in addition to a full day's pay for making the 95-mile trip from DeQueen. On duty 8 hr. 15 min., the crew received 12 hr. 7 min. pay. Under the K. C. S. plan, the conductor and engineer would have been paid so much per hour for the period between the time they went on duty at DeQueen and the time they went off duty at Heavener, at the regular rate provided in the new schedule. Under the K. C. S. plan, the crew would have been paid a fair wage for the work which they did, and not a bonus as a means of penalizing the management for having these men do work which, under the rules, someone else not available was supposed to have done.

A classic example of the barrier which the old agreements put in the way of a railroad attempting to meet the requirements of its customers is afforded by another incident which occurred at Heavener. South-bound train No. 55 arrived at this point with a car containing freight for one of the local merchants. This merchant was in a hurry for the freight, and common sense dictated that the train crew should place the car on the team track where it could be unloaded immediately. The crew, however, did not spot the car on the team track, but set it out on an adjoining track in the yard, for if they had spotted the car on the team track the railway would have had to pay the engineer, fireman, conductor and two brakemen each four hours' pay, the penalty under the rules for putting the car where a delivery truck could get to it instead of on an

inaccessible track in the yard. The situation was actually handled in this way: The railroad agent and the section foreman took a push car, placed it on the track adjoining the door of the freight car, and transferred the freight from the freight car to the push car. They then pushed it around through various switches until they got it to the team track where the delivery truck was able to reach it. Ridiculous procedure of that sort illustrates the way that railroads have to be run under the rules imposed by the old agreements. Under the K. C. S. plan this crew would have set the car on the team track, and for this service they would have been paid at the established rate for the time consumed, and no more.

Benefits of New Plan

From the standpoint of the railway, numerous benefits can be seen in the adoption of the new K. C. S. plan. The plan gives relief from drastic arbitrary and punitive rules, enables the railway to make better use of the services of its employees, permits more flexibility and economy in operation and affords relief from the misunderstandings with employees which have marked the application of the old rules.

The employees themselves will likewise benefit under the new plan. The hourly rate of pay provided is greater than the straight time rates allowed under the old agreements. The new rates of pay, if they had been in effect during the first three months of this year, would have given the locomotive engineers and conductors who worked during that period a greater income than they actually received during the three months under the agreements then in effect. Conductors as a class would have received from 11 to 15 per cent more pay and engineers as a class would have enjoyed an income approximately 5 per cent greater than that which they actually received. Granting that the employees would surrender certain of the concessions which they—or at least their spokesmen in the brotherhoods—have cherished, these concessions are by no means so important as those which they retain under the new plan.

Effects on Competition with Railways

Aside from the benefits which the railway and its employees alike receive directly from this plan, there is a still broader basis for mutual benefit. The railways are now, for the first time, facing competition from other agencies of transportation and are losing large amounts of business to these agencies, a result which is not only making serious inroads on railway revenues, but is greatly reducing the amount of work available for employees—not only train service employees, but those of all classes. To meet this competition effectively, the railways must eliminate every possible waste, inflexibility and excess expenditure, for much of their traffic that is leaving the rails is doing so by reason of the lower rates and more flexible service

that are offered elsewhere. Until such time as the railways can afford to offer corresponding rates and service, they cannot hope to recover this traffic, and until they do recover it they cannot provide the additional employment that is so greatly desired not only by train service employees but those of all classes. The peculiar rules now forcing payment for work not done apply exclusively to train service. They are not in effect for other classes of railway labor. And the effect of the application of these rules has been, and is, to reduce employment and earnings not only of train service employees, but of all classes of railway labor. The public has a right to demand the cheapest transportation that it is possible to provide today. The challenge is to the railways to provide such service.

The railways in recent years have devoted great energy and huge sums of money to the modernization of their physical equipment. They have delayed too long in endeavoring to adapt to modern conditions their contracts with their train and engine service employees. To the extent that the old agreements impair the efficiency and economy of modern railroad transportation, they should be abolished. This is what the Kansas City Southern is doing, and the management deserves great credit for meeting a serious situation squarely, openly and with determination.

Standardizing on the Best Known Practices

There are two ways by which improvements in operating practices may be realized. One is by research and experiment to discover new and improved methods. The other is to seek out the best practices to be found anywhere and apply them generally wherever they will effect savings or improve service. Both approaches to the desired goal, of course, should be constantly pursued, and from every possible angle.

It is one of the most important functions of the industrial or technical journal, such as the *Railway Age* and its sister publications in the railway field, by making generally known the best practices already in use and stimulating the experiment which will result in the development of still better ones, to foster both methods of improving operating performance. Travel by railroad men to study the methods of foreign railways is another way in which the spread of knowledge may be widened. There is a constant stream of foreign railroad men to our shores to acquire first-hand knowledge of our railways. Perhaps our railroads might benefit from similar first-hand study of foreign railways. Be that as it may, certainly the greatest effort should be put forth to seek out and apply generally the best methods which can be found on this continent.

The work of the various associations of railroad

officers is an effective means to this end. The studies and research undertaken by the Federal Co-ordinator of Transportation and his staff and by the committees of railroad officers who are co-operating with the Co-ordinator should prove of the greatest value. One branch of the railroad business, that represented by the Railway Express Agency, has in recent months adopted a plan for a searching examination of its practices which is especially significant because of its unusual thoroughness.

President L. O. Head of the Agency last February appointed from the organization a standard practices committee. This committee has six members—one each representing the four regions into which the Express Agency's operations are divided, one representing the accounting department and one representing the president. Since their appointment the members of this committee have devoted their full time to the work. Starting in the New York area, the committee made an intensive survey of all operations, not only to familiarize themselves thoroughly with them, but also to find out what, if any, changes should be made to apply in that zone the knowledge which committee members already had of practices in other sections of the country. From New York, where the committee spent more than a month, the next move was to Chicago and similar studies were made there, following which other important centers have been visited and studied intensively. The committee is still at work and will continue until all the Agency's operations throughout the country have been standardized in the most efficient practices which are discovered.

The committee works very closely with the local staff in the territories it visits and changes thus far have been effected entirely through the co-operation of local officers. A considerable number of changes in the interest of economy and better service have already resulted. Auditing routine in the accounting department at several points has been simplified, and a new method for checking drivers' loads and totaling their collections which was developed at one point has been applied elsewhere, the new method greatly reducing the time required for this operation, which necessarily involves non-productive time for both the driver and his truck.

Numerous improvements in mechanical practices also have been made standard—such, for instance, as spray painting truck bodies with quick drying materials instead of brush painting with slow drying paint. Improvements in truck design are being carefully weighed, important changes being decided upon only after actual experiment. The efficacy of the plan has already been proved, with many more improvements sure to follow as the committee continues with its work. It is a method of approach to a problem which exists in every branch of the transportation business and one which might be as effective in other branches as it has proved itself to be in the handling of express.

What Can Advertising Do to Promote Passenger Business?

Railways lag behind their competitors in use of
this sales ally—Changes in viewpoint
and methods imperative

SEVERAL years ago, a railroad advertising agent wrote an article which was published in the leading magazine of the advertising profession, in which he made these statements: "The fundamental error of the critics (of railroad advertising and railroad salesmanship) is that they overlook the fact that a railroad is primarily a public utility. What it sells is not an end in itself but a means to an end. This is one of the most essential links in a long chain of transactions, to help the producer give the consumer what he wants when he wants it. Nevertheless, until he does want it, the railroad has nothing to sell. The peculiar duty of a public utility is to be there when wanted—and not until then."

The fundamental error in this man's conclusion—and it is a not uncommon one on the railways—is that he assumed that there would always be enough people wanting railroad service to make it profitable for the railroads to provide that service. One has only to look at railroad car-loading statistics and railroad earnings

statements and to note the vacancy in the average passenger train to reach the prompt and accurate conclusion that the particular public utility represented by the railroads is not "wanted" at the present time to the extent necessary to make railroad transportation a profitable business in which to engage. Looking further at loaded trucks rolling down the highways, accompanied by thousands of automobiles and motor buses, one must conclude also that the railroads have not lost business because no one wanted transportation but they have lost it because so many people prefer another type of transportation. The "be there when wanted, and not until then" policy has cost the railroads untold millions of dollars in the last decade. The cost will continue and will grow unless it gives way to the policy of "create the want and then be there".

The Purpose of Advertising

In the creation of the desire, first, for transportation and, second, for railroad transportation in preference to any other kind of transportation, advertising can and should play a leading part. The job to be done by the railroads in selling their passenger service to the public is, first of all, that of making railroad passenger transportation salable by making it more attractive, from the standpoints of comfort, convenience, speed and cost, than other forms of passenger transportation. But the railroads can air-condition their trains, equip them with the most comfortable seats, run them at high speeds and reduce their rates again and again without winning the desired public acceptance and patronage if the public is not told about these improvements and these transportation bargains. In telling the public what the railroads have to offer in the way of passenger service, in creating the desire for travel and in pounding home the reasons why railroad transportation is better from every point of view than other forms of transportation, advertising is without an equal. The railroads should know this from their own experience. If they do not, there is proof of it in the experience of other industries and of railway competitors.

Rail Passenger Service Faces Keen Competition

The passenger service of the railways is today faced with competition of the keenest sort from the private automobile, the motor bus, the airplane, the trans-Atlantic or intercoastal steamship, and even the telephone. What use are these railway competitors making of advertising in selling their service, the sale of which means the loss of sales to the railways? Automobile advertisements dominate the pages of leading magazines, pro-

FLORIDA

CUBA..SOUTH

Empire of Sunshine

Four Famous Trains
from the North and East:

From New York:
Morning, Afternoon and Evening Departures!

THE MIAMIAN
One-night-out for Miami and East Coast resorts.

GULF COAST LTD.
One-night-out to Central, South and West Coast of Florida.

FLORIDA SPECIAL
(with 3 cars)
27½ hours to Palm Beach;
29½ hours to Miami.

HAVANA SPECIAL
Fastest 1500-mile train in the world, to Havana and both Florida coasts.



From Boston:
(and intermediate New England points):
Morning and afternoon departures! Thru sleeping cars via Havana Special and Florida Special, latter one-night-out, 33¼ hours Boston to Miami.

Tickets, information, etc.,
from New York Office:
8 West 40th Street; or
other offices in principal cities.

ATLANTIC COAST LINE

The Standard Railroad of the South

Atlantic Coast Line Advertising, Selling the South as Well as the Railway, Helped to Increase Florida Business Last Year

claiming the superiority not merely of individual cars but of automobile transportation as well. Motor bus lines use newspaper advertising with a persistence which does their merchandising instinct great credit, and one outstanding company has not only been a large user of newspaper advertising throughout the country but over the past three years has engaged in an advertising campaign in leading general magazines, urging the use of bus transportation to classes of people who would ordinarily consider only rail or automobile travel. In one way or another, the advertising of the bus lines has sold the public on the idea that bus travel is the cheapest form of travel—a conviction which the railways must dissipate if their passenger trains are ever again to be filled.

The air lines proclaim their speed and relative economy in the pages of both newspapers and magazines, especially those among the latter which are circulated most extensively among business men. The advertisements of steamship lines dominate the travel advertising page of newspapers in the larger centers of population and in magazines read by people with the means of travel, in whom the desire, principally, has to be created. (The steamship lines are not content to be there when wanted and not until then.)

The American Telephone & Telegraph Company, one of the country's largest advertisers, devotes a substantial proportion of its advertising space to the selling of the idea of carrying on business transactions by telephone instead of by mail, telegraph or—and this is important to the railways—by personal contact. These railway competitors know what advertising can do and are using it, in bad times as in good, while the railways, which need the public's money as badly as any other industry, are slicing their advertising expenditures to the same painful degree that their competitors are slicing railway revenues.

What Railways Have Spent for Advertising

While the competitors of the railways' passenger service are out after business, partly by personal solicitation but even more largely by the consistent, extensive and shrewd use of the power of advertising, what are the railways doing to promote the sale of their passenger service? Preliminary reports indicate that the railways this year are advertising only about half as extensively as they did even last year, when railway advertising expenditures were rigidly curtailed. Reports of the Interstate Commerce Commission covering the Class I rail-



words, contraction of railway advertising expenditures was accompanied by the contraction of railway passenger revenues, or vice versa—whichever is preferred. In either event, the percentage of their passenger revenues which the railways spend for advertising has remained fairly constant. The amount charged to advertising by the Class I roads in 1928 was 1.9 per cent of the passenger revenues of these roads for the same year. The percentage in 1929 was 2.1; in 1930 and in 1931, 2.3; and in 1932, 2.4.

Compared with the percentage of their total sales which other industries spend for advertising, the amount

ports from a number of representative roads, a small percentage of the aggregate amount charged to advertising represents freight rather than passenger advertising. Furthermore, only about half of the aggregate amount charged to advertising represents the cost of radio time and advertising space in newspapers and magazines which reach the general public, the remainder going for timetables, representation in the Official Guide, booklets and overhead expense.

Allowing for amounts chargeable to freight advertising and allowing further for the amounts charged to advertising but which are expended for some purpose other than creating public desire for and acceptance of railroad passenger transportation, it appears that during the past five years the railways have spent only from \$5,000,000 to \$10,000,000 a year in telling the public through newspapers, magazines and over the radio about railway passenger service—a product which in 1920 was sold to an extent which brought the railways revenues of \$1,288,000,000. It is no wonder that the advertising of railway competitors seems so far to overshadow the publicity efforts of the railways themselves.

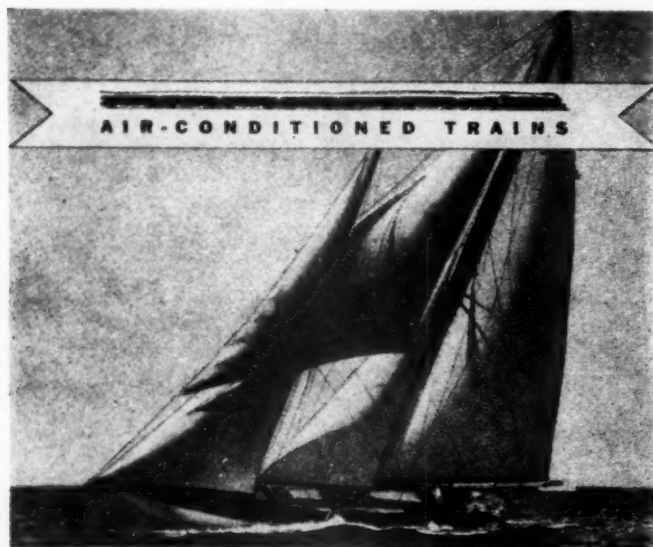
Does Current Advertising Hit Its Mark?

The most common criticism of railway advertising from those best qualified to judge, aside from that to the effect that the railways do not make extensive enough use of advertising in the sale of their service, is that railway advertising too largely misses its mark. The consensus is that railway advertising pays too much attention to competitive railway service and too little attention to competitive transportation of other kinds. To put it another way, the railways spend too much time and money in advertising attacks upon each other instead of upon their common enemy, non-railroad transportation. Examination of a large number of advertisements placed by railroads this year and in a few previous years tends to confirm this statement.

The proof of the pudding is in the eating and no one is qualified to say in advance what results will be secured by any individual advertisement or advertising campaign, but certainly the surface indications are that the real target at which railroad advertising should be aimed was missed widely by the railroad which recently used extensive newspaper space to say that, "We operate more trains on faster schedules via shortest line with better equipment than any other railroad," in one particular territory, and which used space on another occasion to announce that it had placed a new type of car in service sooner than its competitor. Likewise, the railway which turns out beautiful advertisements of scenic regions, to create the desire among the public for trips through those regions, and fails to follow through with reasons why railroad transportation rather than some other form of transportation is the best means of travel to those regions, is doing as much to help its competitors—non-railroad competitors—as it is to help its own passenger business.

Good Results from Good Advertising

This is not to say that railway advertising is bad advertising, what there is of it, and that there is not enough of it, such as it is. The fact of the matter is that some of the shrewdest and most constructive advertising done by any institutions selling to the public is done by railways. The results of such advertising, furthermore, prove conclusively that advertising, far from being merely an expense, is an investment which uniformly pays substantial dividends when it is advertising a product that is right. For example, the Baltimore & Ohio, the Chesapeake & Ohio and other railways which



Cool as an ocean breeze

YET NO EXTRA FARE!

• • •

NATIONAL LIMITED • CAPITOL LIMITED • COLUMBIAN

COOL, clean, and quiet. Whether your trip is a short one—to Baltimore or Washington—or a thousand miles away, say to Cincinnati, Louisville, St. Louis, or Chicago—you can now travel in the utmost comfort even on the hottest mid-summer day or night! The B & O offers you the world's greatest fleet of air-conditioned trains, on which dust, smoke, and soot are automatically removed from the air and unpleasant humidity is automatically corrected. Windows stay closed, adding greatly to the quietness inside—yet fresh

air is constantly drawn in from outside.

We feel sure that you will also enjoy the service and appointments on these trains. Air-conditioned Sunroom-observation-lounge car from Washington west. Club car, Colonial diner, Sleeping cars, and Parlor cars, on the two long-distance trains. Also train-secretary, maid-manicure, barber-valet, and shower-bath from Washington west. (Coaches, for local travel from New York to Washington on CAPITOL LIMITED, are not air-conditioned.)

	Lv. 4th St. Sta.*	Lv. Balto. Sta.*	Lv. Liberty St.
CAPITOL LIMITED, to Chicago	10:15 A.M.	10:10 A.M.	10:48 A.M.
NATIONAL LIMITED, to St. Louis	14:40 P.M.	14:35 P.M.	1:18 P.M.
COLUMBIAN, to Washington	3:10 P.M.	3:05 P.M.	3:45 P.M.

*Motor Coach connection to trains in Jersey City—Standard Time

For leaving time from other stations, and other information, apply to E. D. AINSWORTH, Gen. Pass. Agent, 122 East 4th St. Tel. Ashland 4-1608

BALTIMORE & OHIO

Baltimore & Ohio Advertising Has Spread the News of its Air-Conditioned Trains, with Telling Effect on Their Revenues

spent by the railways is small, but even the percentages shown do not present the true picture. The fact of the matter is that the railways spend for the advertising of their passenger service in newspapers and magazines substantially less than the percentage of their passenger revenues above indicated. The amounts stated above as charged to advertising by Class I roads in each of the last five years represent all possible charges to all kinds of advertising, including some charges which many advertising agents of railways feel have no place in the accounts as advertising expenditures. Judging from re-

have equipped their trains with air-conditioning equipment have done a good job in publicizing this new feature, and their passenger statistics show that the better service plus the advertising has resulted in the winning back from competitors—non-railroad competitors—of substantial amounts of passenger business.

The Pennsylvania-Reading Seashore Lines have done some extremely profitable advertising this summer in promoting their special one-day excursions from Philadelphia, Pa., to the southern New Jersey seashore resorts. For example, during the month of July, 1933, these railroads carried 260,620 passengers, who spent \$274,731 for their tickets. The amount expended for advertising this service in Philadelphia newspapers was \$1,139.75, so that the advertising expense in this case was only four-tenths of one per cent of the revenue received.

In putting over its reduced basic passenger fares this year, the Louisville & Nashville has made persistent and, consequently, successful use of advertising to inform the traveling public of the transportation bargains available. The theme of Atlantic Coast Line advertising last season was to sell a trip to the South. It emphasized its train service from New York and Boston, Mass., to Florida, Cuba and other southern points, but emphasis equal to that given to the name of the Atlantic Coast Line was given to Florida, Cuba and the South as the "Empire of Sunshine" and to the recreation there available. In spite of depressed business conditions, the Atlantic Coast Line's "Florida Special" was operated to capacity on most days last season and showed a large increase in business over the preceding year.

Two Successful Radio Campaigns

The most expensive but likewise the most outstanding and successful advertising campaign ever conducted by the Great Northern was the three-year radio campaign which began in January, 1929, and consisted at the outset of a series of 26 weekly half-hour broadcasts over a coast-to-coast hook-up of 40 radio stations. The weekly broadcasts were resumed in October, 1929, continued until June, 1930, were resumed again in October, 1930, and carried on until June, 1931. The object of this series of radio programs was to promote interest in the territory served by the Great Northern and to establish firmly in the public's mind the name of the Great Northern's new transcontinental train, "The Empire Builder." In spite of the fact that the programs have been off the air for more than two years, as late as midsummer this year Great Northern ticket offices reported that customers spoke about how they had enjoyed them and had made up their minds to travel on "The Empire Builder."

Another successful radio campaign was the series of programs broadcast this summer in behalf of the railroads jointly to induce the public to travel to A Century of Progress in Chicago by rail. The results of this campaign, which reached every corner of the United States, were not checked as closely as they might have been, but there is one bit of very conclusive evidence that they succeeded in their purpose. A farm magazine ran a series of excursions during the summer on an all-expense-in-Chicago basis, leaving it to the clientele to come to Chicago as they saw fit. Before this radio campaign for the railroads began, the paper had signed up a large number of its readers for the all-expense visit in Chicago, 80 per cent of whom stated that they would drive to Chicago in their own automobiles, 10 per cent of whom said they would come by bus and 10 per cent by rail. Subsequent to the broadcast of these programs, however, the situation was exactly reversed,



**TRAVEL CHEAPER
IN SAFETY AND
IN COMFORT**

Between all points on this railroad—any time, any day, at these low rates. No dusty roads, no tires to fix, and famous L. & N. dining car service at lowered prices.

2¢ A MILE
IN COACHES
AND EACH WAY FOR ROUND TRIP
TICKETS IN PULLMANS—NO SURCHARGE

Cost of Pullman space is extra but there is no surcharge under either the 2 or 3¢ rates.

3¢ A MILE
FOR ONE WAY TRANSPORTATION IN PULLMANS.
NO SURCHARGE.

Ask any passenger representative for complete details, reservations, etc.

L & N


The Louisville & Nashville Pounded Home its Reduced Rates with Consistent Advertising of This Sort

75 per cent of the visitors signing up for the special tours coming to Chicago by train, while only 15 per cent came in automobiles and 10 per cent in motor buses. The railroads had the same commodity for sale during and after the radio programs as they had before—extremely low rates to Chicago. They sold their commodity only after they had advertised it.

Advertising Can Promote Passenger Business

Advertising can and will do much to effect a revival of railroad passenger business, provided the product—

**VISIT THE
SHORE
BY TRAIN**



Exceptional Results at Low Cost Were Secured by Last Summer's Advertising of the Pennsylvania-Reading Seashore Lines

Low-priced round-trip excursions every day

\$1.00 **\$1.25**
via Ferries via Bridge

Consult Agents—see flyers
—for details

**PENNSYLVANIA-READING
SEASHORE LINES**

railway passenger transportation—is right from the standpoints of comfort, convenience and speed, provided the price is right, and provided the advertising is of the kind and scope necessary to revive the habit of railway travel. That habit, once strong, has been broken by the determined and resourceful efforts of railway competitors, but it can be re-established if the railways, jointly or singly, will only use the weapons at their command—including advertising—to re-establish it.

Weaknesses of Passenger Service Being Corrected

The railways are becoming conscious of the weaknesses of their passenger service and are beginning to correct them. They are becoming increasingly conscious of the defects in their selling organizations. With passenger service made attractive and with selling forces ready for action, advertising will have a chance to show the railways what it can really do for them. Once the realization is general that advertising is not merely a way to spend money but an essential part of the program necessary to the sale of any product, and once those who know advertising and merchandising are permitted freely to inject their experience and their knowledge into railway advertising, results of the kind necessary to

In the Issue of November 4

This article concludes the first part of the Traffic Development Series, which has dealt with passenger service. The first article in the second part, to be concerned with freight traffic, will appear in the *Railway Age* of November 4. It will be the first of two on store-door delivery, and will answer the question, "Is there a demand for store-door service?"

the revival of the railway's passenger business will be secured. Money spent for improvements in railway passenger service will be wasted unless the investment is protected by money spent to advertise and sell those improvements. Making the improvements and then advertising and selling them, the railways will find that their passenger business has not gone for good.

This article began with the quotation of a statement made by one railroad advertising agent. Let it be closed with the statement of the general advertising agent of another railway:

"It is my belief that advertising is as vital in the sale of railway transportation as it is to the sale of telephone service, automobiles, electric refrigerators, air conditioners, heating and plumbing, periodicals, food, clothing or cosmetics. As a matter of fact, advertising is of even more importance to the railways than to these other services and products, which are competing for the public's dollar, for the railroads lack the advantage of window and store displays in downtown business sections and neighborhood shopping districts. The railroads have suffered for a long period from the public belief that train travel is more expensive than highway travel. That opinion must be contradicted and corrected. Advertising is the cheapest and most practical way to do the job. Furthermore, advertising gives arms and legs to a railroad selling staff. It can and does create a favorable mental attitude. It creates a desire for travel; it interests the prospective traveler in destinations and train service, and according to the effectiveness of the copy appeal, it brings in inquiries on which the sales department can work. Advertising is an invaluable ally of the passenger department."

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading, after having exceeded the 1932 figures since early in May, is again gradually approaching last year's level. For the week ended September 30 the total was 661,827 cars, an increase of 9,158 cars as compared with the previous week but only 40,169 cars, or 6.5 per cent, above the total for the corresponding week of last year and 115,885 cars less than the loading in the corresponding week of 1931. L. c. l. merchandise, forest products, coal, coke, and live stock showed increases as compared with the week before, while all commodity classifications showed increases as compared with 1932.

The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading			
Week Ended Saturday, September 30, 1933			
Districts	1933	1932	1931
Eastern	141,930	140,823	171,477
Allegheny	125,185	110,535	149,008
Pocahontas	52,092	43,783	50,553
Southern	94,720	91,645	109,159
Northwestern	96,870	80,049	108,092
Central Western	96,503	99,282	122,136
Southwestern	54,527	55,541	67,287
Total Western Districts	247,900	234,872	297,515
Total All Roads	661,827	621,658	777,712
Commodities			
Grain and Grain Products	31,434	39,515	37,728
Live Stock	22,186	22,184	27,625
Coal	131,204	129,442	141,957
Coke	7,423	4,591	5,719
Forest Products	25,450	19,152	25,663
Ore	33,187	6,052	27,523
Mdse. L. C. L.	175,404	179,184	219,077
Miscellaneous	235,539	221,538	292,420
September 30	661,827	621,658	777,712
September 23	652,669	595,604	738,036
September 16	652,016	587,246	742,614
September 9	571,387	501,537	667,750
September 2	666,652	561,325	759,871
Cumulative total, 39 weeks	21,423,722	20,972,692	28,721,707

Car Loading in Canada

Car loadings in Canada for the week ended September 30 totaled 51,229, which was an increase over the previous week's loading of 3,842 cars and the index number rose from 62.93 to 66.60, according to the compilation of the Dominion Bureau of Statistics. The total was, however, 584 lower than that for the same 1932 week. All commodities except grain, other forest products and merchandise were heavier than in 1932, miscellaneous freight increasing by 1,175 cars, coal by 1,821 cars and pulpwood by 655 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Sept. 30, 1933	51,229	19,958
Sept. 23, 1933	47,387	19,964
Sept. 16, 1933	47,634	20,638
Oct. 1, 1932	51,813	19,334
Cumulative Totals for Canada:		
Sept. 30, 1933	1,451,607	715,824
Oct. 1, 1932	1,626,874	742,760
Sept. 26, 1931	1,888,587	999,805

THE LONDON MIDLAND & SCOTTISH of Great Britain has recently placed orders for 166 new highway motor vehicles and has awarded contracts for reconditioning 25 motor truck chassis. These orders, which were placed with British manufacturers, embrace all types of highway freight-carrying vehicles, including heavy truck chassis, livestock trucks, parcel delivery trucks and "mechanical horse" tractors.

Illinois Terminal Improves Freight Facilities

Construction of a modern terminal at St. Louis removes barriers to operation which had strangled the traffic capacity of this road

TO expedite the movement of its expanding freight traffic into St. Louis, Mo., and its interchange with roads leading south and west from this gateway, as well as to improve its passenger service and shorten schedules between St. Louis and the suburban communities in the metropolitan area east of the Mississippi river, the Illinois Terminal Railroad has recently completed a terminal project at St. Louis at a cost of \$10,000,000, which, while standing as an independent unit, is one phase of a still larger program of improvement and co-ordination of its terminal properties in the industrial area in and around St. Louis.

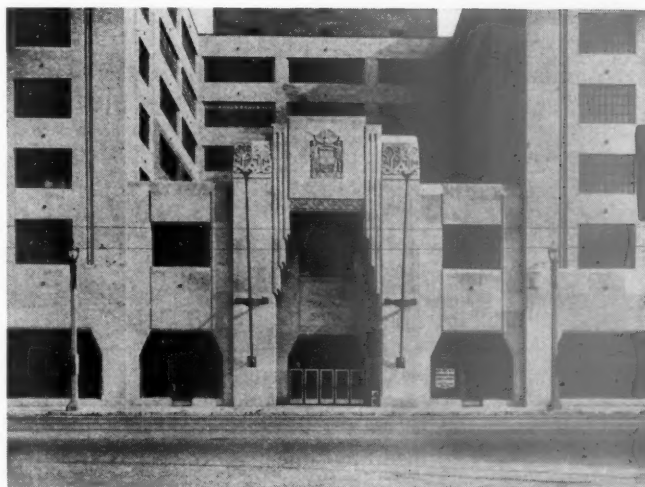
This improvement involved the construction of 1.722 miles of double-track elevated line and 0.674 miles of double-track subway, the latter being under a widened street. In addition to this new main line which replaced a surface line, the project also includes an 11-track underground freight yard having a capacity for 100 cars, a 12-story universal freight station and office building and complete passenger facilities. Supplementary to this construction, private industries have also constructed facilities which represent a collateral investment of about \$4,000,000.

Was Originally a Passenger Line

The Illinois Terminal Railroad enters St. Louis from the east over the McKinley bridge across the Mississippi river, which was built in 1910 by one of its constituent lines, the Illinois Traction System. At the time this road was extended to St. Louis, passenger traffic was its principal objective. Because of this policy, the road accepted franchises from St. Louis and from cities in Illinois which contained restrictions that made satisfactory freight operation impracticable. At the same time, advantage had been taken of franchise permission to lay



A View of the Subway Looking North from Biddle Street, Showing the Character of Construction



Main Entrance to Midwest Building

its tracks in the city streets, which still further hampered the movement of freight, particularly in St. Louis where a freight terminal had been established.

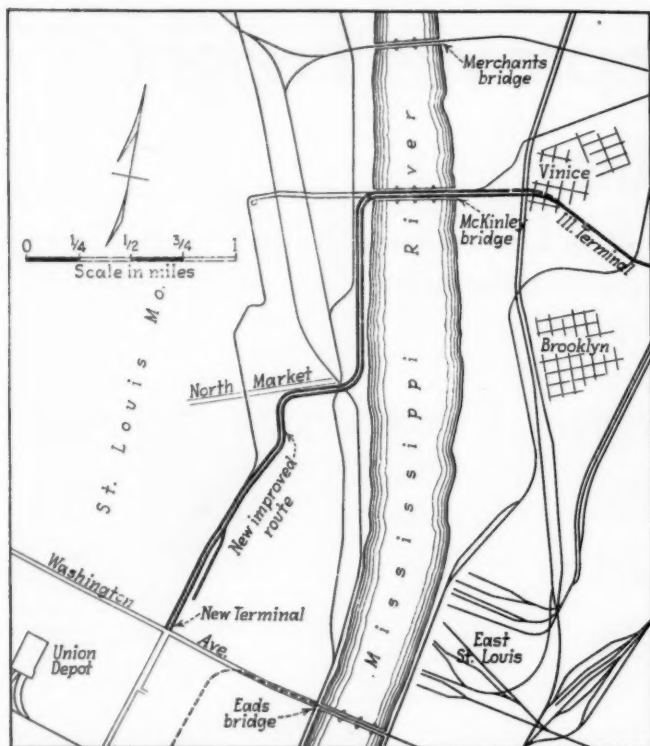
Freight Traffic Developed to Replace Passenger Business

Owing to the decline in passenger traffic which followed the extension of paved roads and the wide use of the automobile, it became imperative that the road, if it was to continue in operation, develop a freight traffic to replace the lost passenger revenues. As one means to this end, belt lines were constructed around the larger industrial centers in Illinois, such as Venice, Madison, Granite City, Edwardsville, Springfield, Decatur, Champaign and Urbana.

These belt lines not only made it possible to avoid the franchise restrictions so far as they applied to freight traffic, but they opened to rail facilities large areas of land suitable for industrial development. Recently, many of the original franchises have been modified in such a manner as to enable the road to improve its service to individual shippers and thus obtain a larger proportion of their business, a considerable part of which originates at or is destined to St. Louis.

As a result of this change in policy and of these additional facilities, freight traffic showed a marked increase, so that the facilities which had been provided in St. Louis became inadequate to permit the road to render a satisfactory service to its patrons in that city. This situation was further aggravated by the fact that in 1928 the operation of the Illinois Traction System was merged with that of the Illinois Terminal. Coincident with this merger, a number of independent steam lines serving the highly developed industrial district east of the river were also included in the consolidation.

To co-ordinate the operation of these formerly inde-



Map of the Improved Route of the Illinois Terminal Railroad into St. Louis

pendent and largely disunited lines, as well as to improve and extend the service which, as a single system, they were able to render to the industries of the district, a large program of construction was undertaken. This had as its objectives the welding of the individual lines into a united and properly co-ordinated system, the improvement of existing facilities, and such added facilities as were needed to handle the increased traffic that was expected as a result of the consolidation. As a matter of fact, the added traffic which resulted from this merger placed a still greater strain on the already overtaxed facilities in St. Louis and made their expansion imperative.

Restrictions Limit Flow of Traffic

From McKinley bridge, the line was on the surface and followed an extremely tortuous route, partly in city streets and partly on private right of way. Owing to the congestion of vehicular traffic on some of these

streets, the sharp curvature which was a prominent feature of this route, and other physical restrictions, including intersecting streets and eight crossings at grade with other railways, the capacity of this section of the line was severely limited.

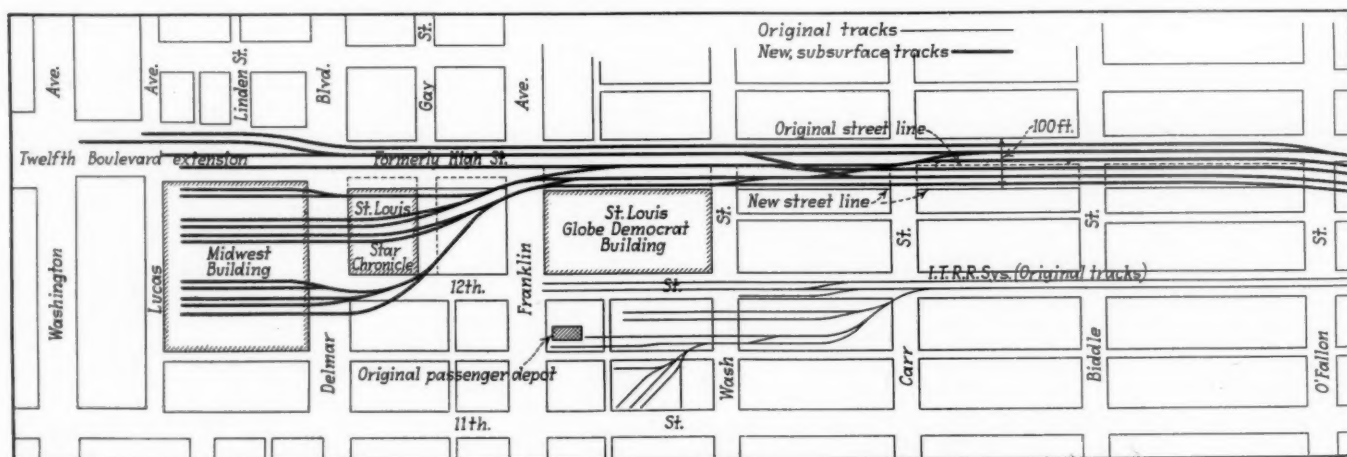
Acute as was the situation with respect to facilities for receiving and delivering freight, there was little to be gained by improving and expanding them unless the limitations were removed which made it impracticable to reach them with any considerable volume of traffic. While this situation had been foreseen at the start and its correction was proposed as the second step in the larger program, preparation of the plans and negotiations with the city made it impracticable to start construction until 1929.

Since removal of the restrictions which retarded the free flow of traffic was a prior requirement for any form of expansion in this terminal, the plans provided that the first unit to be constructed should be a double-track elevated line, 1.722 miles long, to connect the enlarged terminal with McKinley bridge. The elevated structure begins at the west end of McKinley bridge as a steel viaduct which turns directly south on a 12-deg. 40-min. curve. From the end of this curve it continues as a concrete trestle and descends to grade at a point slightly less than 2,000 ft. from the bridge, to give access to a freight yard and provide for the improved interchange facilities that it was desired to establish with the Terminal Railroad Association of St. Louis and other roads in the vicinity.

From the connection with the interchange yard, the tracks remain on embankment for about 2,000 ft. to Montgomery street. From this point, there is 450 ft. of concrete-trestle approach to another steel viaduct which turns west, crossing North Market street on a 10-deg. 30-min. curve. The tracks then parallel this street to Broadway, where they turn south and southwest to Tyler street, at which point the viaduct ends. From this latter point, there is an incline to Howard street where grade is reached. Between Howard and Cass streets, two blocks, the tracks occupy Twelfth street on their original alinement.

Terminal Facilities Are Enlarged

Through the construction of this part of the line, which was placed in operation on July 4, 1931, seven of the rail crossings at grade and 23 of the 29 street crossings were eliminated. As an indication of the improvement in operating conditions made possible by this construction, express service which was effective over the



Layout of the New Subsurface Trackage in the Terminal Area



From the McKinley Bridge the New Line Descends to the Interchange Yard

new line on August 3 of that year reduced the running time between St. Louis and Venice, Ill., by 12 min., besides which it became possible immediately to feed freight into the terminal as rapidly as it could be delivered.

Having removed the major restrictions which had interfered with the movement of traffic, the next step was to enlarge the facilities for receiving and delivering freight sufficiently to care for immediate needs and provide a margin for future growth. Plans for this feature of the project contemplated retention of the existing team tracks and other freight facilities at street level north of Franklin avenue, and their enlargement by incorporating the area occupied by the existing passenger facilities after their removal.

Although the rearrangement and enlargement of these facilities were of considerable benefit, they still fell far short of providing the capacity that was required, and did not include adequate provision for handling l. c. l. freight. Furthermore, previous investigation had disclosed that there was an unmet demand in St. Louis for a large amount of warehouse space directly accessible to rail facilities. Again, since the blocks in the area suitable as a site for the terminal are short and narrow, a relatively large part of any layout that could have been designed for use at street level would, of necessity, have been unproductive because of the numerous street intersections, while little of the remainder could have been utilized fully.

Obviously, closing the streets across the proposed terminal area would have avoided this interference with the utilization of the terminal trackage, but this would have interrupted the continuity of several important through routes and would have created a serious obstruction to traffic in this section of the city. These considerations led to a study of the possibility and practicability of providing underground facilities for both passenger and freight service.

Subway Demonstrates Many Advantages

This study indicated that such an arrangement had none of the disadvantages that have been mentioned; and that there were several outstanding advantages. Among the latter, the remaining six street crossings at grade would be eliminated without closing any of the streets. Furthermore, the plan lent itself to the construction of freight and warehouse facilities in the form of an air-right development over the company's own property. It also made possible freight connections to future industrial plants that might be located adjacent to the new route, without interference between rail and street traffic. It provided ample room to develop the passenger facilities that were needed to care for both through and suburban business. Of most importance, however, it made it possible to retain the enlarged ter-

terminal in the heart of the business area, between the wholesale and shopping districts and adjacent to the civic center which the city is developing. As constructed, the terminal area adjoins High street on the west and Washington avenue on the south.

High street, running north from Washington avenue, is virtually an extension of Twelfth boulevard, but at this time was only 50 ft. wide, whereas Twelfth boulevard south from Washington avenue is 150 ft. wide. While the terminal plans were in process of development, the city expressed a desire to extend and widen Twelfth boulevard north from Washington avenue. As a result of this suggestion, an agreement was worked out between the city and the railway whereby the latter was permitted to occupy this extension to Twelfth boulevard with a subway between Washington and O'Fallon streets in return for widening this street to 100 ft. between these points.

Subway Is 100 Ft. Wide

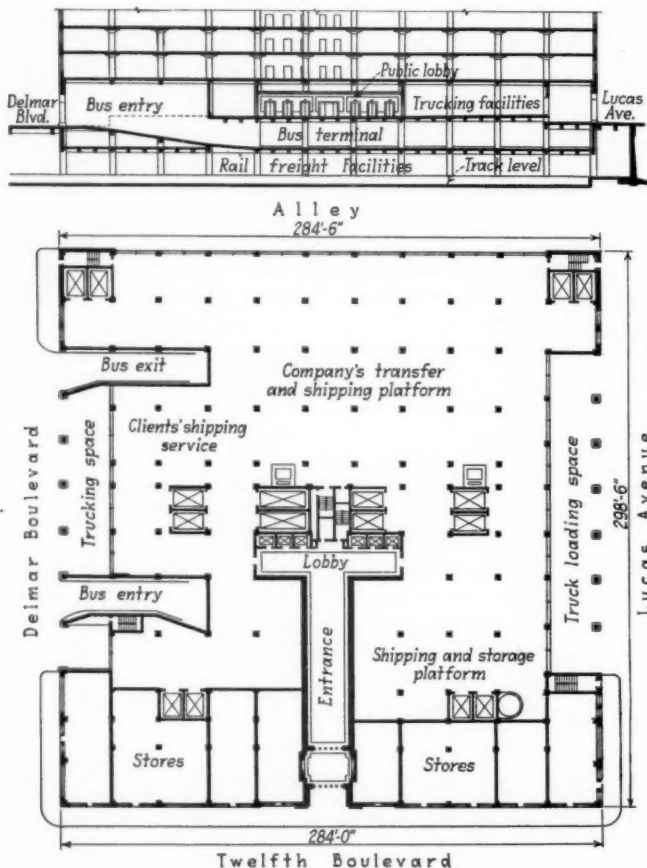
Since the subway occupies the full width of the widened street, there is ample space for six tracks and three of this number have been constructed between O'Fallon and Franklin streets. Throughout the subway, the outside tracks are designed as industrial tracks, the center



Extension of Twelfth Boulevard, Looking North from Wash Street

two as passenger tracks and the remaining two as freight tracks. At Franklin avenue, two tracks diverge to the east, leading to an 11-track freight yard having a capacity for 100 cars. This yard was designed primarily to serve the Midwest building, as the structure housing the l.c.l. freight and warehouse facilities for the terminal is designated. Some of these tracks perform another function which will be mentioned later. The track plan also provides for an extension of the double-track main line to reach the combined passenger station and office building that will be erected later, at the corner of Washington avenue and Twelfth boulevard.

Several interesting features were involved in the construction of the subway. The sewers in this area are laid in east and west streets, and all of those affected by



Vertical Section and First Floor Plan of the Midwest Terminal Building

the improvement were above the floor of the subway. For this reason, it became necessary to construct below the level of this floor, an intercepting sewer, 7 ft. 6 in. in diameter, from Morgan street, now Delmar boulevard, to Biddle street, at which point it is enlarged to 10 ft. 6 in. and extended to O'Fallon street where it connects with a city trunk sewer through a 40-ft. vertical shaft. To complicate the construction problems, including both the sewer and those of foundations, solid rock was encountered at somewhat irregular depths varying from 4 to 12 ft. below the subway floor. In addition to the sewers, a 36-in. water main was moved to Thirteenth street, one block west, between Lucas and Cass avenues.

The subway structure consists of a structural steel frame on concrete footings to support a reinforced concrete roadway slab which in turn is finished with an asphalt wearing surface. Sufficient property was purchased on the east side of Twelfth boulevard extended to permit the maintenance of an earth slope on this side of the cut for the subway, and the cut was finished in

this manner between O'Fallon and Wash streets. As all of the widening took place on the east side of the street, the west line was not disturbed, and here it was necessary to construct retaining walls at many points to protect the buildings and adjacent property. Some of these, as at Biddle market, extended the full depth of the cut. Others were as low as 7 ft. and the ground below the footing was allowed to take its natural slope. One of the illustrations shows the wall at Biddle market during construction and also indicates the character of the subway foundations and of the structure supporting the roadway.

While water was not encountered in the subway cut in sufficient volume to cause difficulty or require pumping, the earth toward the bottom of the cut contained enough water to make thorough drainage desirable. This was accomplished by installing tile in all inter-track spaces and leading them to the sewer. The tracks were then ballasted with crushed slag, this type of ballast being used on all tracks except on the ballast deck of the elevated structure which was a part of this project.

Two Large Terminal Buildings Projected

As a part of the development, two terminal buildings were projected, one of which has been constructed; the other will be erected when required. The first, known as the Midwest building, faces on the extension of Twelfth boulevard and occupies the entire area between Delmar boulevard and Lucas avenue as far as the alley between Eleventh and Twelfth streets. While as yet only 7 stories have been constructed, the eventual development of this structure calls for 12 stories above the street level, with a set-back section of 3 stories above this, above which is a tower 4 stories high, containing elevator machinery, tanks and other equipment.

As explained, this building is designed to house the inbound and outbound l. c. l. freight facilities of the road and to provide space for distributors who desire warehouse space with direct access to rail facilities. Freight loading and unloading platforms with tail-board space for 42 trucks are installed at street level and are accessible from Lucas avenue and the east side of the building. Temporarily, the passenger facilities are housed in this building at street level. Except for this and a row of stores which face on Twelfth and Delmar boulevards the floor space is all given over to the handling of freight. Below street level on a mezzanine, provision has been made for a motor coach terminal in connection with passenger traffic. The track level is given over entirely to facilities for handling the ordinary l. c. l. traffic of the road which passes through the street-level freight house, and either l. c. l. or carload freight for the tenants in the building.

Floor areas are 75,900 sq. ft. for each floor, except the first and second floors which contain 84,480 sq. ft. each. The first, second and third floors are designed to carry loads up to 250 lb. a sq. ft.; above this the design loading is 200 lb. Twelve freight elevators having platforms from 9 ft. 4 in. by 12 ft. 9 in. to 9 ft. 5 in. by 20 ft. and ranging in capacity from 7,500 lb. to 12,000 lb. have been installed to serve all floors. In addition, four freight elevators operate only between the street and track levels. In the final development, provision is made for six high-speed passenger elevators to serve the offices and display rooms in the set-back section of the building. Structural steel is used for the frame of the building to the second story, above which the construction is of reinforced concrete. The exterior is faced with stone and glazed buff brick.

Temporarily, the passenger facilities are located in the
(Continued on page 530)

Reciprocal Buying of Coal Condemned

Co-ordinator, in communication sent to regional committees, also recommends action on six standardization projects

WASHINGTON, D. C.

A COMPLETE revision of railroad coal-buying methods, to include the development and adoption of standard performance specifications for coal and incidentally to do away with the present custom of paying more than the commercial market price for coal mined in a railroad's own mines and the "pernicious" practice of reciprocal purchasing, is recommended by Co-ordinator Eastman in a communication sent to the three Regional Co-ordinating Committees of the carriers on October 6. He also formally recommends action with respect to the standardization of cars, lumber, rails, and rail accessories, and the adoption of a simplified invoice form, as well as improvement in coal-purchasing methods.

For the most part, Mr. Eastman says, the standardization projects have been under consideration by railroad committees or associations for a long time, and this is also true of the simplified invoice action. The Co-ordinator believes, however, that the time is now ripe for the consummation of these projects, with the possible exception of the standardization of rail joints and other accessories, where serious patent difficulties will be encountered.

Under the provisions of the Emergency Transportation Act the Co-ordinator is without power to enter orders with respect to such matters until they have been referred in the first instance to the regional committees but "if, in any instance, a committee has not acted with respect to any matter which the Co-ordinator has brought to its attention, and upon which he is of the opinion that it should have acted", he is authorized and directed to issue and enforce such order as he shall find to be consistent with the public interest.

Purchase of Coal

The recommendation with respect to the purchase of coal is based largely on evidence gathered by the Interstate Commerce Commission in its Ex Parte 104 investigation, and a summary of that evidence, describing road by road many of the present coal-buying methods of the carriers, by W. P. Bartel, director of the Commission's Bureau of Service, is appended to the communication. The conclusions in Mr. Bartel's report severely condemn the practice of trading purchases for traffic and declare that "it should be entirely discontinued." Briefly, it shows that in many instances the railroads have been paying considerably more than the market price for coal, because of traffic considerations or for the purpose of helping "on-line" mines, and that coal-purchasing methods have been "lax" in other respects.

The Co-ordinator remarks that "there is no sound reason why railroads should subsidize mines by paying more than the market price for coal, and it is quite clear that this custom has not prevented demoralization in the coal industry." He suggests that "if the railroads wish to help the coal mines, a much sounder and more effective way would be to reduce the freight rates on coal, thus aiding the mines to meet the competition of other fuels." He says that the "custom of reciprocal buying in return for supposed traffic advantages is one which permeates the railroad industry, and when indulged in by all railroads, as is inevitable once such a

custom is started, is of advantage to none and of injury to all." The Emergency Act, he says, furnishes the opportunity to break up those practices through "united, collective action."

The standard performance specifications recommended would be based on chemical and physical properties affecting fuel value, and the roads are asked to adopt standard inspection and test methods such as those used by governmental organizations and by large industrial and utility companies.

The text of Mr. Eastman's communication and the accompanying memorandum of his Section of Purchases, together with some remarks by Director Bartel, follows:

As you know, one of the sections of my organization, known as the Section of Purchases, is studying the elimination of avoidable waste in the purchase and application of railway materials, equipment, and supplies. I know that the railroads, individually and through the American Railway Association, have made much progress in standardization, notably in connection with equipment which must be interchangeable in use. A very large field still remains, however, for saving money through reduction in variety of types, dimensions, specifications, and other factors of many items of supplies, material and equipment. Individual roads can do and have done much in this direction, but plainly maximum economy is dependent on collective action of all of the roads.

There is nothing new or novel about such a program, for it has been carried into successful practice by many industries, including the railroads to a very substantial extent, as above indicated. Where many separate companies are involved, however, agreements are difficult to accomplish and progress inevitably slow. The function which my Section of Purchases can, I believe, perform is to accelerate collective action and act as a nucleus around which it can center. I need hardly say that the section realizes fully that standardization or simplification of practice should not be so employed as to retard improvement and development. Whatever standards are adopted, means must be provided whereby they will be reviewed at regular periods, and modified or revised when good cause is shown.

In carrying on its work, the Section of Purchases has met with hearty cooperation from the American Railway Association, the American Railway Engineering Association, the interested departments of the individual railroads, and the railway equipment and supply trade.

Certain projects now appear to be far enough advanced to warrant referring them formally to the Regional Coordinating Committees for action. It should be understood that the Section of Purchases does not claim to have originated these projects. They are all matters on which work had been done before the Section entered the field by railroad and/or other organizations, and in one instance by the Interstate Commerce Commission. This work has, however, been accelerated since the Section became active, and I believe that it has reached a stage where formal consideration by your committees is appropriate. These projects are as follows:

1. *Standardization of Equipment.* The Car Construction Committee of Division V of the American Railway Association has completed its work on standardization of a 50-ton steel single-sheathed box car. Sample cars of the proposed standard type are being inspected and tested. Some committee work has already been done on similar standardization of hopper cars, gondola cars, refrigerator cars and tank cars. Upon present information I believe that this work on standardization of equipment should be vigorously pressed to completion, and the standards so developed adopted by the railroads.

2. *Standardization of Lumber.* This project covers nomenclature, grades and dimensions of lumber. The Committee on Specifications of Materials, of Division V, A.R.A., has completed its work on lumber standards for the use of mechanical departments, and has sent out ballots to the General Committee of Division V. The proposed standards cover both hard wood and soft wood lumber. They conform in general to standards adopted by the American Railway Engineering Association.

Each of these two sets of standards, however, includes certain items not included in the other. These items are said to be required by the departments for which the standards were developed and not usable by the others. "American Lumber Standards" were adopted several years ago by Lumber Manufacturers Associations, wholesale and retail lumber dealers, and many large users other than railroads. These standards were promulgated by the Department of Commerce as "Simplified Practice Recommendation No. 16", and cover soft wood lumber. The standards now proposed for Division V, and those of the American Railway Engineering Association, conform in general to American Lumber Standards in respect to soft wood lumber. Upon present information I believe that this work on lumber standards should be vigorously pressed to completion, that the standards developed by all these groups should be brought into conformity within the limits imposed by technical requirements, and that the standards finally developed should be adopted by the railroads.

3. *Standardization of Rail Sections.* This project contemplates the establishment of not more than five standard weights of rail, each to be rolled in only one section, in lieu of the great diversity of weights and sections now in use. The Rail Committee, composed of members of the American Railway Engineering Association and of Division IV, A.R.A., has agreed on two of the proposed sections, for 131 lb. and 112 lb. rail. The 131 lb. section has been adopted as A.R.A. standard, and the 112 lb. section is being voted on at present. Upon present information I believe that this work on rail standardization should be vigorously pressed to completion, and the standards so developed adopted by the railroads.

4. *Standardization of Rail Joints and other Rail Attachments and Accessories.* This project has recently been under consideration by a sub-committee of the Rail Committee. The diversity in rail joints and other attachments and accessories is even greater than in rail weights and sections, and causes much waste, not only in first cost but also in handling, storage, accounting and maintenance. Upon present information I believe that this standardization project should be vigorously pressed. I realize that a serious complication exists in the large number of patents covering various features of this material. Cross-licensing of patents, as practiced successfully in many industries, offers one possible remedy for this situation. My Section of Purchases will do everything within its power to aid in arriving at a solution, to the end that the waste which now undoubtedly exists may be avoided.

5. *Simplified Invoice Form.* This project was initiated by industry in 1927, and was developed under the auspices of the Department of Commerce. The simplified invoice so developed was adopted by a large number of industrial and commercial firms and by a few railroads during the following two years. It was recently presented by my Section of Purchases to the Disbursements Committee of the Railway Accounting Officers Association, recommended by that Committee, and approved by the Convention of the Association in August, 1933. Upon present information I believe that the recommendation as approved by the Association should be made mandatory of all railroads.

6. *Improvement in Coal-Purchasing Methods.* This is a matter which has been under investigation by the commission in Ex Parte 104, Part 1, and I submit to you herewith an analysis of the record, with recommendations, which has been prepared partly by the commission's Director of Service, and also a memorandum from my Section of Purchases. Inasmuch as the commission has power of review over the co-ordinator but has itself no power to require changes in purchasing methods, it is believed that time will be saved by taking the matter up with your committee in this way.

Briefly, I recommend the development and adoption of standard performance specifications for coal, based on chemical and physical properties affecting fuel value, and of standard inspection and test methods such as those used by governmental organizations and by large industrial and utility companies. The adoption and faithful use of such specifications and methods will have the incidental effect of doing away with the present custom of paying more than the commercial market price for coal mined on a railroad's own lines.

If I may add a word to what is stated in the accompanying documents, it is true that the coal industry has been in bad shape for some years, and also that it is of benefit to a railroad to have on its lines successful mines shipping large quantities of coal. But there is no sound reason why railroads should subsidize mines by paying more than the commercial market price for fuel coal, and it is quite clear that this custom has not prevented demoralization in the coal industry. If the railroads wish to help the coal mines, a much sounder and more effective way would be to reduce the freight rates on coal, thus aiding the mines to meet the competition of other fuels. So far as prices are concerned, it is up to the mines to protect them-

selves; there is no good reason why the railroads should grant them special favors which no other users of coal grant.

The custom of reciprocal buying in return for supposed traffic advantages is one which permeates the railroad industry, and when indulged by all railroads, as is inevitable once such a custom is started, is of advantage to none and of injury to all. This pernicious custom can not be broken up except by united, collective action, and the Emergency Act furnishes the opportunity.

I realize, also, that there will be much resistance to the idea of buying coal on performance specifications, on the ground that the conditions under which coal is used in the railroad industry differ radically from those in other industries, and that the practical test of actual engine use is the only reliable guide. Upon present information I believe that investigation will show that this thought is not well founded. It ignores what has been done in the development of performance specifications, as distinguished from mere b. t. u. specifications, and of tests to measure performance.

The above are the only matters with reference to purchase which I shall now refer to the Regional Coordinating Committees, but I shall refer others from time to time. In your consideration of these matters, my Section of Purchases will be at your command for consultation and discussion.

Memorandum of Section of Purchases

Project No. 6, "Improvement in Coal-Purchasing Methods."

Information at hand, including testimony taken at hearings of the Interstate Commerce Commission, indicates that there is much waste in the purchase and use of coal by the railroads. Two principal causes of waste are the following:

(1) Differences in prices paid by one carrier and/or by different carriers for coal of the same kind from mines in the same or in different regions, because of traffic considerations and for the purpose of supporting "on line" mines.

(2) General failure to buy coal on a basis of performance value per dollar expended, largely due to lack of standard specifications and standard methods of inspection and testing.

In the case of coal bought at different prices in the same region, the influence of the traffic department is exercised in the same way as in the case of many other materials bought. In cases where a higher price is paid to mines on the line of a railroad there is much difference of opinion as to the soundness of the practice. When compared with the experience of other industries, however, the evidence indicates that it is uneconomical in the long run, particularly when the practice is general. Some railroad officers believe that it is necessary to support mines on their lines, in some cases paying those mines more than the commercial market price for their coal and more than the price paid for that coal by other railroads, on the theory that if those mines are kept going they will be able to sell coal elsewhere and thereby create traffic for the road.

It has been demonstrated by the federal government, certain state and municipal governments, many large industries and public utilities, that coal can be bought on specifications with economy. Many railroad officers claim that regional and other differences in quality of coal, and differences in requirements for use on railroads, are such that it is impossible to develop specifications which will satisfactorily cover all conditions. This opinion does not seem justified by the facts in hand or by the experience of the buying groups above mentioned.

Since the value of coal as locomotive fuel is based on amount of water evaporated per unit of coal burned it is necessary to develop some practical method of comparison which takes into consideration all of the factors affecting that ultimate performance, such as b. t. u. content, percentages of volatile matter, moisture and ash, ash fusing temperature, etc., also certain physical characteristics such as size, structure and hardness.

A combination of these factors, duly weighted, would provide a sufficiently accurate measure of performance relative to that of a coal known to be satisfactory as locomotive fuel, which would be taken as a "standard" or "base" coal.

The performance of this base coal would necessarily vary under different conditions of use, being lower for example in locomotive service than in certain types of large power plants. It has been found, however, that under any reasonable conditions of use the relative performance can be determined very closely by the method of "rating" suggested above. While ratings based on chemical analysis and physical tests may be reasonably conclusive, they should be supplemented by visual inspection at the mine and at point of delivery, and finally checked by tests in actual performance. A certain amount of such inspection and testing is now done by most railroads, but there are no established uniform standards for measuring results.

When coal is bought on a basis of performance value, the

final "adjusted cost" per unit of performance may be determined by adding cost at the mine and cost of transportation to the point of use, and dividing the sum by the rating of the coal. Railroads may require several kinds of coal to meet different classes of service, but a standard base coal can be established for each, also a minimum rating below which the coal is not satisfactory for that service. Under some circumstances, a coal of low rating may give better performance per dollar expended than a coal of much higher rating. Ample information is available from governmental and private sources for developing the necessary standards.

It appears that the establishment of standard practices for buying coal on a basis of performance value per dollar expended would result in substantial direct savings to the railroads, and would also be useful in eliminating the practice of awarding coal orders as compensation for the routing of commercial traffic. The Section of Purchases therefore recommends that action be taken to this end.

Bartel Finds Discriminatory Practices

The conclusions in the report by Director Bartel include the following:

From extensive testimony it is evident:

- (a) That there is no uniform practice in the selection of coal;
- (b) That practically all roads on which coal originates and some others make little or no effort to find the most efficient and economical coal, but, in the main, purchase certain coal for traffic reasons;
- (c) That while some few carriers purchase coal on definite specifications, these specifications are purposely varied so as to permit the use of certain coals; others purchase on general specifications; and
- (d) That in the selection of coals most roads confine their purchases to coal that has been approved as satisfactory and disregard entirely differences between coal that merely meets and that which exceeds the minimum requirements.

It is futile for coal originating roads to try to maintain the stability of the coal industry by paying higher than market prices for their fuel, when the greater proportion of the coal produced is sold to other industries and to other railroads at unduly low prices, frequently below the cost of production.

It is in the public interest that railroads be operated efficiently and economically. This is contemplated by the Interstate Commerce Act. The cost of fuel is, next to labor (payroll), the most important item of operating expense. Consequently, it behooves those in charge to see that sound business methods are strictly and intelligently employed in its selection and purchase. To accomplish this purpose purchases should be divorced from all extraneous considerations.

To the extent that premiums are paid to favored producers or brokers, others are discriminated against and this can only bring about a spirit of retaliation by competitive price cutting, thus reducing market prices to the injury of the coal industry.

It is repugnant to sound business to pay more than market prices for materials and supplies. We do not mean respondents should use their purchasing power to beat down coal prices to the injury of the industry, but we see no reason why they should not insist on as favorable treatment as is accorded other industries. Neither are we impressed with the argument that carriers serving mines or refineries should pay more for their fuel than others because they do not have to pay foreign-line freight charges. They are entitled to the benefit of their location, just as in the purchase of other commodities.

The abolition of the so-called policy of "reciprocal purchasing" is a necessary prerequisite to the economical purchase of fuel, coal, for it, more than any other factor, is the source of the present unbusiness-like practices. Respondents say that preferential treatment of operators and brokers who are shippers over their lines is a sound business principle recognized by all industries. Even if sound when indulged in by private business, it assumes a different aspect when adopted by railroads as the resulting unnecessary expense must be paid by the public.

Both quality and prices are now subordinated by many respondents to the exchange of coal orders for commercial traffic and not only have they come "perilously near" but there is reasonable ground for belief that numerous carriers have violated the Elkins Act. The payment of more for coal bought from large shippers of commercial traffic than prices for which coal of equal quality or even the same coal is offered by others for the purpose of obtaining or holding revenue traffic, or in order to enable favored operators to underbid competitors in other markets, is in effect a payment of money for traffic and a device not far removed from the payment and receipt of a rebate, concession, or discrimination. Prohibited rebates, con-

cessions, or discriminations may be effected by an equivalent as readily as by cash. The manifest purpose of the act is to strike through all pretense and all ingenious devices to the substance of the transaction.

The preferential treatment of commercial shippers has grown to a reprehensible extent. As expressed by one witness "the reciprocal purchasing feature became doubtless more disturbing than those who inaugurated it anticipated, and no operator seems to be satisfied with the allotment made to him, in fact there was hardly an operator who did not offer his commercial tonnage, no matter how small, as a reason for being considered in fuel tonnage allotment." It almost invariably causes an increase in operating expenses and unjustly favors one shipper over another. Even when not carried to the extent of violating the letter of the law, it is antagonistic to the spirit and purpose of the Elkins Act. The Supreme Court has often declared that the purpose of Congress was to cut up by the roots every form of discrimination, favoritism and inequality. *New Haven R.R. v. I.C.C.*, 200 U.S., 361. The practice should be entirely discontinued.

Western Roads Reduce Basic Passenger Rate

BASIC railway passenger fares will be reduced and the Pullman surcharge eliminated by railroads in the western district on December 1 for an experimental period of six months, following action taken at a meeting of the Western Association of Railway Executives at Chicago on October 6. The reductions in passenger fares that will be made by the western railways will include the complete elimination of the Pullman surcharge.

The present basic passenger rate of 3.6 cents per mile will be reduced to 3 cents per mile for one-way tickets, and to 2½ cents per mile for round-trip tickets with a time limit in excess of 10 days. Furthermore, a rate of 2 cents a mile may be made by individual roads at their discretion for round-trip tickets with a 10-day time limit. All of these tickets will be honored in all classes of equipment.

Any railroad or group of railroads may also institute a rate of 2 cents a mile for one-way travel in day coaches only. The adoption of this rate is not compulsory, but is left to the discretion of the member lines.

"These reduced fares will be instituted," according to H. C. Taylor, chairman of the association, "as a group experiment to increase railway passenger travel throughout the entire Western District. Individual roads in the West and in other parts of the country as well have experimented with various levels of passenger fares, and nation-wide reductions in fares have been made to and from Chicago ever since the opening of the Century of Progress. In general, these experiments have shown favorable results. As a consequence, the western railways as a whole have decided to institute a standard basis of reduced fares for an experimental period of six months. The results of this experiment cannot now be forecast, but we are exceedingly hopeful that these reduced fares will materially stimulate railway passenger travel."

Reduction Result of Extended Study

The action taken by the western railways is a result of an extended study of the effect of lower rates on traffic development and represents a co-ordination of opinions of managements. The failure of the railroads to change the basic rate heretofore has been due to a difference of opinion among the managements as to the effect of a lower rate and to the fact that if the rate is

once reduced and the results are not successful, it will be exceedingly difficult to increase it.

The lines that have been opposed to any decrease have maintained that a general reduction in the basic fare will not attract sufficient traffic back to the railroads to offset the loss in revenue; that there is no basis for assuming that in the present depression or even under more normal conditions the carriers could develop anywhere near the required additional traffic, or handle it if they secured it, without greatly increasing their operating expenses; that the falling off in passenger traffic prior to the depression was not due to the fact that people could not afford to travel; and that a reduction in the basic rate would penalize the railways in the eastern district.

The railroads favoring a reduction of the basic passenger rate do not contend that traffic will be stimulated to any extent comparable with the resulting loss in revenue. They contend, rather, that the passenger business of their lines will continue to decline and that if the decline is at the same rate as that which occurred during the prosperous years of 1928 and 1929, this business will be entirely lost within 33 years. On this basis, they argue that the loss in revenues that will occur with the present rate of decline will more than exceed that which might result from a reduction in the basic rate, since the lower rate will stimulate some business at least. It is the viewpoint of many of the railroads, particularly in the West, that the paramount problem is to stop the decline in passenger traffic if the railroads are to continue in the passenger business. They are of the opinion, based on experiments with low rates, that a reduction in the basic rate will arrest the decline.

Low Rates Stimulate Travel

The effect of low rates is demonstrated in the travel to A Century of Progress Exposition at Chicago. As a result of the low fares that have been in effect, it is estimated that the normal rail traffic into Chicago has been increased by more than 1,000,000 passengers during the period from May 27 to October 1. The New York Central, for example, during the period from May 27 to September 4, carried 368,301 passengers into Chicago. As a result of reduced rail and Pullman rates, 3,281 extra Pullman cars were operated in July and 3,961 extra cars during August.

The action taken by the western railroads as a whole follows that previously taken by several other railroads. On April 1, 1933, the L. & N., the N. C. & St. L., the G. M. & N., and the N. O. G. N. reduced the basic rate to 2 cents in coaches and 3 cents in Pullman cars for a period of six months and then extended the period. On August 1, 1933, the Great Northern and the Northern Pacific reduced their coach and tourist sleeping-car rate to 2 cents, leaving the rail fare for Pullman sleeping cars and parlor cars at 3.6 cents. At the same time, the Chicago, Milwaukee, St. Paul and Pacific established a 2-cent rate on its main line west of St. Paul, Minn., while the Chicago & North Western and the Union Pacific placed a 2-cent rate in effect at competitive points.

Meeting of Eastern Executives October 13

Executives of Eastern and Southern railroads were scheduled to meet on October 13, the former to take action on reductions recommended by their passenger traffic officers, and the latter to formulate a policy in the matter.

Traffic officers of Eastern railroads, other than New England, at a meeting in New York on October 5, agreed upon a schedule of proposed passenger fare reductions, which was recommended for adoption by the

Eastern Presidents' Conference at the latter's October 13 meeting. Prior to this meeting, on the same day, executives of Southern roads were scheduled to hold their conference on the matter. The proposal of the Eastern traffic officers recommended, for a six-months trial period, a rate of three cents per mile for one-way tickets and 2.5 cents per mile for round-trip tickets. Also, under the proposal, the Pullman surcharge would be eliminated and mileage books would be sold at an average rate of 2.7 cents per mile.

Illinois Terminal

Improves Freight Facilities

(Continued from page 526)

Midwest building. The plans provide, however, for a 20-story combined passenger station and office building, to be known as the North American building. It is to be located at Washington avenue and Twelfth boulevard, with the principal passenger entrance on Washington avenue. The passenger concourse is to be at street level with ramps leading to the subway level and passenger platforms.

Air-Rights Development

Simultaneously with the construction of the subway and other facilities, the St. Louis Globe-Democrat purchased property and erected a new publishing and printing plant which occupies the entire block bounded by Franklin avenue, Wash and Hadley streets and Twelfth boulevard. Trackage at the subway level provides direct connection with the stock rooms, thus eliminating a large amount of trucking through city streets. A similar plant is also being erected by the St. Louis Star-Chronicle, facing on Delmar and Twelfth boulevards. This, however, is an air-right development, the first in St. Louis, being directly over the leads to the yard serving the Midwest building, which also provide it with direct rail facilities.

Mention has been made of the restrictions that formerly hampered the movement of freight into and out of this terminal, and how they were removed by the construction that has been described. A similar improvement was made possible in passenger operation, particularly into the suburban territory served by this road. Prior to undertaking the improvement, the schedule called for 30 min. to Granite City, Ill. Through the completion of the new main line and a rerouting over the east side belt lines, the time has been reduced to 20 min. Similarly, the new schedule to Alton, 26 miles, is 45 min., and to Edwardsville, 20 miles, 45 min., with comparable schedules to other points.

All of the work in connection with the improvement was done by contract, except the excavation for the subway and other underground facilities, amounting to more than 500,000 cu. yd., which was done by company forces. The city also applied the asphalt surface on Twelfth boulevard. More than 70,000 cu. yd. of concrete was deposited in foundations, retaining walls, platforms, street slab, etc., not including that part of the Midwest building above street level. For this purpose, a central mixing plant was erected at a convenient location for mixing all concrete except that for distant points on the work. The latter was proportioned in this plant, however, but hauled to the work in transit mixers.

The entire project was carried out under the general direction of A. P. Titus, now president and general manager.

Westinghouse Builds Diesel Locomotive for Transfer Service

Each engine-generator set, with all auxiliaries, can be removed as a unit

By T. H. Murphy

Railway Engineer, Westinghouse Electric & Manufacturing Company

A 530-hp. Diesel locomotive has recently been placed in service by a railroad in western Pennsylvania for switching and light transfer haulage. Initial indications are that the new locomotive will require only five gallons of fuel oil per active service hour.

All parts of the new locomotive are arranged for maximum accessibility with the hoods over the engines spaced to allow an aisle on each side. The electrical control apparatus is mounted to permit servicing from the cab and engine room. This roominess is obtained without detracting from the operator's visibility as windows permit a clear view over the locomotive and along the side. Dual control permits operation from either side of the cab.

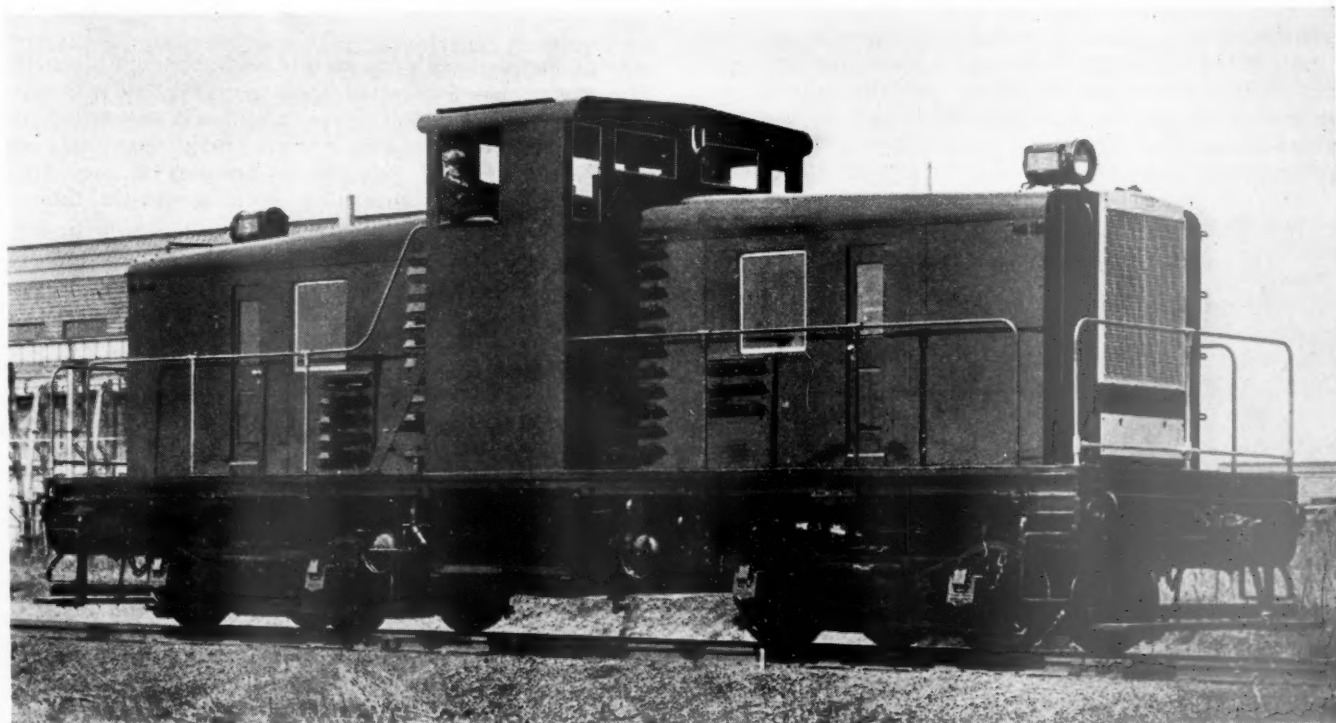
The progress in Diesel locomotive design has enabled this locomotive to be built without the weight handicap of previous units. The total installed engine horsepower is 530, giving 8.15 hp. per ton of weight. This is 60 per cent greater than early designs of Diesel locomotives. This high horsepower per ton gives snappy performance and makes the unit suited for both switching and transfer service.

The operator's cab has a raised floor and is located between the hoods housing the engines. A control stand of master controller, air brake and the necessary gages

is located on each side next to the window. The operating levers, consisting of a brake lever, a reverse handle and a throttle handle, are connected together with levers to give dual control which makes it possible for the operator to change from one side to the other at any time. One lever governs the applying of power to the motors, their connection in series or parallel, and the speed of the engine for governing the locomotive speed.

Two four-cylinder engines, each developing 265 hp., are mounted one at each end of the locomotive. The symmetrical layout gives uniform weight distribution. The hoods over the engines are about three feet lower than the cab height and three feet narrower than the width over the main frame. A runway or platform goes around the three sides of the hoods. This low height of the hoods and runway permit the operator to see over the train and down to a switchman standing on either end of the locomotive. There is ample room under the hoods for all necessary inspections and repairs on the electrical apparatus or the engines. The height over the engine is sufficient for head and piston removal, and the aisle on each side for bearing inspection or other work.

The underframe is built up of structural steel with center and side sills. Lifting lugs are provided near the ends of the underframe. The bumper is of steel plate



Westinghouse 65-Ton, 530-Hp. Diesel-Electric Locomotive

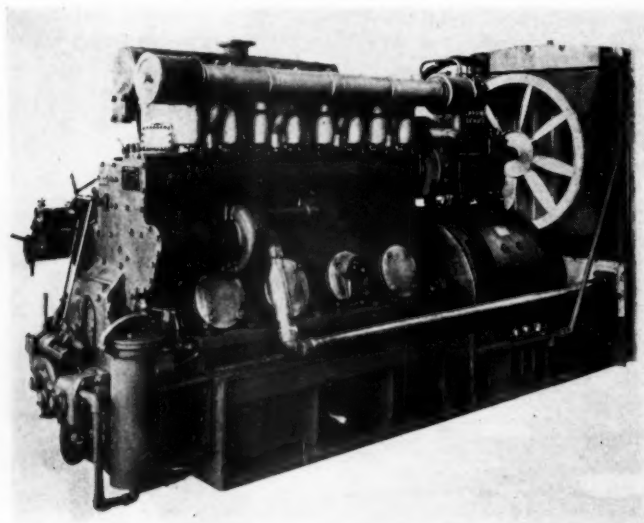


Looking Forward from the Operator's Cab

and the coupler is a standard A. R. A. short shank, mounted in a cast-steel pocket. The cab and hoods over the engine room are built of steel plate and structural steel, braced and riveted.

Two swivel trucks with center pins are used. The frames are of rolled steel and forgings. The wheels are steel tired with spoke centers. Two railway traction motors are mounted on each truck, supported by nose suspension from the bolster and one geared to each axle.

Air brakes are provided on all wheels, giving a braking effort of approximately 85 per cent at a cylinder pressure of 50 lb. per sq. in. Individual brake cylinders are mounted on each truck. Two water cooled air compressors, one mounted on each generator and directly



The Self-Contained Power Plant

connected to the engine, provide 148 cu. ft. per min. displacement at full engine speed.

Sand boxes are built integral with the main frame. Pneumatic sanders deliver sand to the leading wheels when running in either direction.

Power Unit

Each engine, with its muffler, generator, radiator, compressor, lubricating oil tanks, and all filters, forms a compact independent power plant mounted on a bedplate. Removal of the whole assembly can be accomplished by sliding out through the locomotive end. This permits independent and complete testing of each plant and auxiliaries either in the locomotive or on a test block. All piping is confined to the power plant which makes a neat engine room and permits accessibility to all parts.

The engine is a solid-injection, four-stroke-cycle, four-cylinder Diesel developing 265 b. hp. at 900 r.p.m. A cast-steel crankcase is used that gives a minimum thick-

General Data and Dimensions of the Westinghouse Diesel Locomotive

Builder	Westinghouse Elec. & Mfg. Co.
Number of locomotives.....	1
Mechanical parts.....	Baldwin Locomotive Works
Service	Switching and road
Weight in running order.....	131,000 lb.
Tractive force:	
Starting, 30 per cent adhesion.....	39,300 lb.
Continuous	10,000 lb.
Speed at continuous tractive force.....	12.2 m.p.h.
Maximum safe speed.....	40.0 m.p.h.
Minimum radius of curvature:	
Alone	50 ft.
With load.....	225 ft.
Length inside coupler knuckles.....	40 ft. 4 in.
Width overall.....	10 ft. 2 in.
Height, maximum.....	14 ft. 2 1/2 in.
Wheel base, rigid.....	6 ft. 8 in.
Wheel base, total.....	39 ft. 0 in.
Wheels, diameter.....	33 in.
Engines (2).....	Westinghouse, 4-cyl. Diesel, 9 in. by 12 in., 265 hp. each, 900 r.p.m.
Compressors (2).....	Gardner-Denver, gear drive, duplex, 74 cu. ft. per min., 900 r.p.m. engine speed
Air brake.....	W.A.B., schedule 14-EL
Generators (2).....	Westinghouse, 170 kw., 500 volt, d.c.
Traction motors (4).....	Westinghouse, 110 hp. 600 volts
Control	Westinghouse electro-pneumatic, dual, series, parallel, differential
Battery	32 cells, 204 amp.-hr.
Control and lighting.....	64 volts

ness of material with low weight and abundant strength. The engine has individual light-weight cylinder heads, removable liners, dual valves, aluminum pistons, large counter-balanced crankshaft with main bearings between cylinders and extra large bearings at each end, and variable-speed governing with automatic timing. Protection against low lubricating-oil pressure, a protective overspeed governor and a vibration dampener are also included.

A railway type generator is directly connected to the engine. The compressor is mounted directly on the generator frame and connected to the camshaft. The radiator is mounted on an extension of the bedplate and is an integral part of the power plant. A fan passes air through the radiator.

The generators and motors are standard railway-type machines. The motors are rated at 110 hp. at 600 volts. All four traction motors can be connected to one power plant.

Control Equipment and Auxiliaries

The control is of the differential type. The engine speed is remotely regulated by three small electro-pneumatic cylinders mounted as a unit on each engine. Operation of either controller in the operator's cab energizes the throttle device and governs the engine speed to a predetermined value. The movement of the controller

from "off" to the first point connects the traction motors to the generator and further movement merely serves to increase the engine speed and the flow of power for propulsion. An electro-pneumatic reverser is used. The reverser position is determined by an auxiliary "reverse" drum and handle on the master controller. Motor and control contactors are magnetic in type.

The control and lighting voltage is 64 throughout to conform to the 64 volt battery. The battery in addition to supplying control and excitation is used for engine starting. The generators are used for cranking the engines and are directly connected to the battery when starting them. The batteries are charged directly by the generators. The battery boxes are mounted directly under the operator's cab. Two boxes are used, one on each side of the locomotive which permits easy servicing.

One fuel tank is mounted directly under the cab between the battery boxes. Its capacity is 350 gallons. Heavy Diesel fuel is used. A small fuel pump driven by an electric motor forces the oil to the main fuel pumps of each engine. Strainers are a portion of each fuel line. An air tank is mounted on each side of the fuel tank next to the motor trucks.

Harmonious Regulation of Transport Agencies Needed

THE opinion that "an earnest attempt should be made to combine in harmonious action the different transportation agencies, and to so regulate them, by the application of appropriate federal and state laws, as to prevent them from injuring one another and also to prevent them from injuring members of the general public," was expressed by P. J. Farrell, chairman of the Interstate Commerce Commission, in an address before the National Association of Railroad and Utilities Commissioners at Cincinnati on October 10. Emphasizing that he was speaking only personally Mr. Farrell said he was somewhat afraid that a return to the "deplorable conditions" which prevailed before the enactment of the act to regulate commerce in 1887 will be the result of the competition between carriers using different kinds of transportation facilities, "if corrective measures are not applied to the situation."

Taking as his text a statement attributed to an early statesman as to the need for "a wise and frugal government which will prevent men from injuring one another, but leave them otherwise free to regulate their own pursuits of industry and improvement," he traced the development of railroad regulation "for the purpose of preventing men from injuring one another," but he said the revolution in the transportation world which began about 1929 and has continued with ever increasing force since, "has caused those interested in regulation to stop, look, and listen." In this connection he asked if it would not be improper to continue to apply the restrictions of the long-and-short-haul clause in Section 4 of the interstate commerce act to railroads, in view of the impracticability of applying it to motor transport.

"I assume," he said in part, "that no one will undertake to maintain that it would be possible to prevent men from injuring one another by making and enforcing a law which would compel common carriers by railroad to refrain from departing from the rates for transportation published and filed by them, if a similar law were not applied to transportation agencies who use

motor vehicles operated upon public highways, because it is clear that, under such circumstances, the motor vehicle operator would have an unfair advantage over the competitor engaged in transportation by railroad. When we undertake to determine the method of procedure to be adopted and followed for the purpose of removing this unfair advantage, however, we are confronted with problems it is somewhat difficult to solve, for the reason that circumstances and conditions pertaining to transportation by railroad vary materially from those applicable to transportation by motor vehicle. I feel certain that members of this association, who are well acquainted with the differences to which I have referred, will agree with me that, in addition to reaching conclusions concerning the laws which should be applied to transportation by motor vehicle, it will be necessary to determine whether some changes are necessary in the laws now applicable to transportation by railroad.

"Although I am talking only for myself, I do not believe it would be proper for me at this time to indicate, except in a general way, the changes I think should be made. However, I do not hesitate to express the opinion that it would be improper to eliminate from the interstate commerce act the rules prescribed by Congress which make unlawful unjust and unreasonable charges for transportation and practices indulged in by common carriers which result in unjust discrimination and undue prejudice. In saying this, though, I do not intend to include section 4 of the act. Competitive conditions which existed prior to the advent of the motor vehicle have appeared to me in the past to make it difficult to determine whether unjust discriminations are increased or decreased in number and degree by applying the provisions of that section to the matters thereby covered, and that difficulty has been very much increased by the use of motor vehicles operated on public highways over routes which in many instances are much shorter than those by railroad between important points of origin and destination. I feel certain you will agree with me that, because of the pick-up and delivery services connected with transportation by motor vehicle, it would be impossible as a practical matter to apply to such transportation the restrictions contained in section 4; and, if this be true, would it not be improper to continue to apply them to transportation by railroad?"

"As I have already shown, the words 'under substantially similar circumstances and conditions' were in both section 2 and section 4 as originally enacted, and they are still included in section 2. They were eliminated from section 4 by the Mann-Elkins act of June 18, 1910, some times referred to as the commerce court act. The elimination from section 4 of the phrase mentioned simply transferred to the commission the duty of determining in the first instance whether carriers should be permitted to depart from the long-and-short-haul rule, but in that connection the commission has always considered competition a matter of importance; and to justify this conclusion it is only necessary to examine a map and observe the network of railroads which exists in the United States. Also, if we are to have transportation facilities by railroad commensurate with the needs of the general public, circuitous as well as direct lines must be afforded an opportunity to participate in transportation between important points.

"In determining what laws it would be proper and is necessary to enact for application to transportation by motor vehicle, and whether, and if so what, changes should be made in the laws now applicable to transportation by railroad, we must of course have in mind and consider seriously the interests of the general public;

and this brings me to what I regard as one of the most important matters connected with transportation at the present time. We have seen that unrestricted competition between carriers engaged in transportation by rail-road, and the absence of laws the enforcement of which would have prevented such carriers from indulging in practices which were unfair to the shipping and traveling public, brought about the deplorable conditions which existed prior to February 4, 1887; and I am somewhat afraid that a return to those conditions will be the result of the competition between carriers using different kinds of transportation facilities, if corrective measures are not applied to the situation. Generally speaking, members of the public are entitled to the transportation service which harmonizes best with their needs, and should not be required to pay for such service more than is reasonable and just; and carriers should be permitted to participate in performing the service only to the extent that they may be able to do so without exacting unreasonable charges therefor and without indulging in practices which bring about either unjust discrimination or undue prejudice. The according by carriers of artificial advantages to certain persons and places which necessarily results in depriving other persons and places of natural advantages should not be tolerated, and laws should be enacted and enforced which will remove and prevent what, in the past, has been referred to more forcibly than eloquently as cut-throat competition, because it is clear that such competition is inconsistent with and detrimental to the interest of the general public.

"I have no authority to speak for President Roosevelt, but, if I have interpreted correctly the speeches made by him during the recent campaign and those he has delivered since, the purposes I think we should have in view in making and enforcing regulatory laws, and which I have described very inadequately, are entirely in harmony with what he is endeavoring to accomplish."

New Book . . .

The Price of Transportation Service, by Winthrop M. Daniels. 86 pages, 7½ in. by 5 in. Bound in paper. Published by Harper & Brothers, New York. Price 75 cents.

In this treatise Professor Daniels analyzes and seeks to explain the prices at which the various types of railway transportation service are offered to the public, i.e., he states his theory of railway rates. Pointing out that no preconceived program for the fixation of railway rates can be a substitute for a factual diagnosis of existing rate systems, the author proceeds on the latter basis, including in his discussion an account of roles played by historical and political elements which have come along with the stream of economic agencies to produce the extant price structures in the rail transport field. Emphasis throughout is placed upon the growing importance of cost of service as a factor in the determination of rates. This cost factor, Professor Daniels finds, has encroached more and more upon the empirical fixation of transportation prices and promises to supplant the "unchartered freedom" of an earlier rate making regime. He ventures, at this date, no prediction as to whether motor and pipe-line competition will seriously disrupt rail rates "that have been laid on the Procrustean bed of distance (with a fixed allowance for terminal costs)", but he does suggest that "the mere ability of the patron to pay is likely to be more extensively qualified as the active principle of rate-making, and the cost to the carrier to afford service to take on a growing importance."

The treatise is part of a larger work on railroad transportation which is not yet complete. Its prior publication "has a double object; first, to supplement various texts whose treatment of the subject proceeds along somewhat different lines; and second, to elicit criticism which may serve to improve the version of the subject here outlined."

A Communication . . .

Sees Need for "New Deal" in Passenger Equipment Design

GRANTWOOD, N. J.

TO THE EDITOR:

I have talked to the man in the street to convince myself that the heroic efforts made by the railroads to attract passengers are of any avail. It is only with regret that I find the public rather little impressed with improvements like individual seats, lunch counters in dining cars, air-conditioning, etc. By analyzing the reasons I find that the public expects these things, because it has been so spoiled by other institutions that add these refinements.

Psychologically speaking, there is only one explanation for this, and that is: To the railroad man every improvement that branches out from standard practice looks rather large and out of proportion to its actual value, whereas the man in the street takes it largely for granted and dismisses it therewith. As every one of these improvements is usually connected with an increase of weight, and the question of fare reduction is looming up, connected with increased speed (meaning increased operating cost), I wonder if passenger traffic in the future can at all be profitable under these restrictions.

Furthermore, I doubt if it means very much to the traveler if on a five-hr. run another 15 min. are clipped off from the schedule and if, looking at an unfortunately marred safety record, the traveler will not be suspicious. He knows that these increased schedules (that mean comparatively little to him) are done by straining the equipment just a little more.

The question therefore looms up: Are all these investments worth the effort—is all the publicity given to them worth the money? Would it not be a better investment to start all over again and use the money available for radically new equipment of light-weight, streamlined design? Something which the layman also can recognize as being new, something that will last and bring actual profits for years to come.

There has been talk of a joint advertising campaign to make the public railroad-conscious again. I am very much in favor of advertising—but only if there is something to sell. And in this case there is nothing to sell other than a glorious past.

The fact, however, that something new would appear on the rails—a train that reduces fares and is profitable to operate, a train that clips off 25 to 30 per cent from the established running time—would be enough to carry plenty of publicity-momentum to keep the cost of advertising this service to a minimum.

The new trains now being built, even when only in their infancy of construction, have received more publicity than any other form of transportation in the last ten years. This indicates most effectively that the public is highly interested and that it thinks of using this service whenever it is available on regular schedules.

A vigorous training of employees as salesmen for the railroads, improvements in station accommodations insofar as restaurant service and food prices, etc., are concerned appear a dire necessity if compared with the efforts made by other carriers that are in far less advantageous position in regard to location of terminals, etc.

The impression might be gained that the writer would like to see all equipment scrapped and replaced at once. While this undoubtedly would be the ideal condition, it is well realized that it cannot be done if for no other than financial reasons. But a place must be found for new equipment that allows a slow retiring, which will be so much easier if there is equipment at hand that operates at a substantial profit. Experiences here and abroad, especially on French railways, have indicated a policy that appears at once profitable and lasting.

The public wants to see something; the builders of equipment are ready to supply it—a change of policy now appears necessary before it is too late.

O. KUHLEK.

NEWS

Study of Labor Conditions in Motor Truck Industry

Bureau of Labor Statistics gathering data for the co-ordinator's research organization

In co-operation with the Section of Research of the organization of the federal co-ordinator of transportation, the United States Bureau of Labor Statistics has undertaken a comprehensive study of the wages, hours and working conditions in the motor-truck transportation industry. This is being done both to supply the public with accurate information concerning employment in the trucking business and to furnish material for a part of the general investigation being made by the co-ordinator's organization on which recommendations for new transportation legislation are expected to be based. The information will be used in reaching conclusions as to the extent to which differences in the costs of rail and truck transportation are affected by the lower wages paid to truck employees and also in connection with a study of the relations between rates and costs of truck transportation.

The investigation is to be made both by correspondence and by direct investigation by agents of the Bureau of Labor Statistics, which has sent out an elaborate questionnaire to the operators of motor trucks, containing 36 main questions and numerous subdivisions designed to bring out complete data on the subject. The American Trucking Associations, Inc., the new organization which has just been formed by a merger of the American Highway Freight Association and the Federated Truck Associations of America, is also co-operating in the investigation by aiding in the distribution of the questionnaires, accompanied by a letter by Ted V. Rodgers, president of the association, strongly urging members to fill out the questionnaire as completely and promptly as possible. He said that, as presumably whatever legislation may be undertaken will be based on the co-ordinator's report, it is important that the statistics collected be accurate and truly represent a cross-section of the industry, and that the association will do everything in its power to assist in seeing that the collection of the data is facilitated and will be of the kind which will give an accurate picture.

The letter sent out with the questionnaire by Isador Lubin, commissioner of labor statistics, says that the answers will be held strictly confidential and will be used only for the purpose of securing a picture of the industry as a whole.

Railway Rates and Prohibition

It seems to be taking nearly as long to get the wartime passenger rates for railroad travel reduced as to repeal national prohibition. In fact, if the railroad presidents do not "get a wiggle" on themselves, the record will show that prohibition came and went quicker than the wartime surtax on Pullman rides. We nominate Armistice Day as the deadline for getting the railroad presidents out of their huddle and a suitable prize goes to the railroad president who does not wait until it is unanimous.

From the Chicago Journal of Commerce of October 5, 1933

The questions call for detailed information as to the number and classification of employees, schedules, hours of work and of rest, and compensation. For instance, one question asks the smallest amount earned by any driver who worked regular time in July, and also the largest amount earned by any driver. Other questions ask about special or extra pay for extra services, allowances for expenses, etc., and as to what attention is paid in hiring employees to previous experiences, age, and skill, physical tests, etc.

Club Meetings

The Western Railway Club will hold its next meeting on Monday evening, October 16, at Hotel Sherman, Chicago. R. L. Lockwood, Director, Section of Purchases, Federal Co-ordinator of Transportation, Washington, will speak on Railroad Purchases and Standardization.

The Railway Club of Pittsburgh (Pa.) will hold its next meeting at Fort Pitt Hotel, Pittsburgh, on Thursday evening, October 26. This is the annual meeting, with election of officers. The meeting will be followed by entertainment, and preceded by a dinner at 6 o'clock.

Freight Forwarders Submit Proposed Code

The Domestic Freight Forwarding Association has submitted to the National Recovery Administration a proposed basic code of fair competition which has been set for hearing on October 17 at Washington before Deputy Administrator Malcolm Muir. The administration has approved a substitution for the President's Re-employment Agreement for the industry, providing for a work week of 40 to 48 hours for the employees. An accompanying statement showed that this industry in 1929 employed 7,000 persons and has recently increased the number from 6,000 to 7,500, as a result of the re-employment agreement.

Danger in "Public Enemy" Attitude Toward Carriers

Woodlock fears public ownership if proposed new legislation is punitive

Writing in the Wall Street Journal, former Interstate Commerce Commissioner Thomas F. Woodlock compliments Co-ordinator Eastman for the research work he has undertaken, but he warns against the danger of public ownership of the railroads should the proposed new legislation prove punitive rather than remedial in character.

"Co-ordinator Eastman, a few days ago, addressing the Springfield (Mass.) Traffic Club and Shippers Advisory Board," Mr. Woodlock writes, "gave his hearers an outline sketch of the work upon which he is engaged. It is an impressive picture of varied and multiple activities, mainly in the way of research, and to those who do not know the Co-ordinator's capacity for work it must seem an impossible burden for one man to carry. Mr. Eastman, however, thrives upon this sort of thing and possesses a pair of shoulders on which there seems to be always room for one more sack, and there need be no anxiety as to his ability to 'chew' what he has 'bitten off.' So far so good.

"The one supremely important activity in the list concerns itself with the recommendations which it will be his duty to make with respect to 'permanent' railroad legislation in the next congressional session. It is not too much to say that the Co-ordinator will have more influence in determining the character of that legislation than will any other man in the United States—for that matter any single group of men. What his recommendations will be he does not tell us, for the (good) reason that he does not know, and will not know until he has collected and digested a great deal of information.

"He does tell us something of the things which are under study with a view to legislation. There is, for instance, the matter of competing forces of transport and the need for their 'regulation.' There is the matter of labor. There is the matter of regulation of railroad activities as such, apart from the question of competition. There is the matter of consolidation of existing systems and the 'possible government participation in the management, ownership or financial responsibility for these properties in all of the forms, major or minor, which such participation might take,' and so forth.

"The Co-ordinator says of this task: 'Perhaps this recital of the studies which

(Continued on page 538)

New Research Committee of Mechanical Division

Plan proposed by general committee has been approved by the board of directors

The plan proposed by the General Committee of the Mechanical Division for a Committee on Research to investigate and report on problems which, in the opinion of the Division, require investigation and research, has been approved by the board of directors of the American Railway Association. The appointment of the following committee is announced by the Mechanical Division in Circular No. D.V.-808:

Harley A. Johnson (chairman), director of research, American Railway Association

E. B. Hall, general superintendent motive power and machinery, Chicago & North Western

F. H. Hardin, assistant to president, New York Central Lines

F. W. Hankins, chief motive power, Pennsylvania System

J. Purcell, assistant to vice-president, Atchison, Topeka & Santa Fe

W. G. Black, vice-president, Chesapeake & Ohio.

After preliminary study and approval of a particular problem referred to it, the committee will set up a general plan of investigation of that problem, together with the method of procedure and estimate of cost. Existing railroad laboratory facilities will be used as far as possible and, where necessary, the committee will arrange for other facilities, such as those of railway equipment companies and universities, or will make recommendations for the equipping of the necessary laboratory by the American Railway Association.

Each project for research and investigation will be handled separately, with its own budget, which will have to be justified by the results expected to be accomplished and which will be submitted to the Board of Directors in each instance for approval.

The following subjects have been selected for immediate report on plan of procedure and estimated expense:

Use of stainless steel, aluminum alloys and other alloys in locomotive, passenger- and freight-car construction.

Streamlining of high-speed passenger trains.

Refrigerator car design—Economics of fundamentals of a refrigerator car.

Air conditioning of passenger cars.

Study of economics in freight-car dimensions and capacities.

Other subjects which have been selected for future consideration are: Gas-electric and other types of motor rail cars. (This subject is being handled for the present by the Committee on Automotive Rolling Stock.)

Counterbalancing of locomotives—Relation of locomotive design and operation to track structures. (This subject is being handled for the present by the Committee on Locomotive Construction.)

Containers and container cars.

Combination vehicles designed for use on highways and rails.

Self-clearing cars for bulk loading.

Roller bearings for railroad equipment. (This subject is being handled for the present by the Committees on Locomotive Construction and Car Construction.)

High-pressure locomotive boilers. (This subject is being handled for the present by the Committee on Locomotive Construction.)

Oil-electric locomotives. (This subject is being handled for the present by the Committee on Locomotive Construction.)

The subject of Trucks and Springs To Promote Easier Riding and Reduce Harmonic Spring Action is being handled by the Committee on Car Construction and road and laboratory tests are under way at the present time.

The automatic train-line connector investigation will continue under the direction of the Director of Research.

Pension Association Meets at Chicago

The Railroad Employees' National Pension Association, Incorporated, held its annual meeting at the Congress hotel at Chicago on October 9-12, where it continued its discussions looking to the passage of railroad pension legislation. The meeting was addressed by Lieutenant-Governor Thomas J. O'Malley, of Wisconsin, Lieutenant-Governor Donovan, of Illinois, United States Representative B. M. Jacobson, of Iowa, United States Senator Louis Murphy, of Iowa and former Senator Otis F. Glenn, of Illinois.

The association is sponsoring the Hatfield-Keller bill, now pending before Congress, which provides for the retirement of railroad employees when they have reached the age of 65 years, or have accumulated 30 years' service, the pension to amount to 60 per cent of the employee's salary averaged over a period of time. A pension fund would be established by payment into the United States treasury of a specified percentage of the earnings of employees and of the gross earnings of the railroads.

"Royal Scot" Quits World's Fair for Exhibition Tour

The "Royal Scot", the limited train of the London, Midland & Scottish of England, which has been on display as part of the travel and transport exhibit at A Century of Progress Exposition, left Chicago at 8.30 a. m. on October 11 for an exhibition tour of the western states and Canada. The train left Chicago on the Chicago, Burlington & Quincy and was escorted on a parallel track as far as Mendota, Ill., by a train representative of the "Aristocrat", Chicago-Denver limited train of the Burlington, which had been on exhibition at the Fair alongside the Royal Scot. At Mendota, the British train transferred to the Illinois Central on which road it traveled to Bloomington, Ill. Thence it was to proceed over various roads to the Pacific Coast, north to Vancouver, B. C., and thence eastward through Canada to Montreal, making frequent stops enroute for exhibition purposes. From Montreal the train will be loaded on a ship to begin the return trip to England sometime in November.

Eastman Foresees Notable Changes in Transportation

Studies convince him that important innovations are due especially in railroad field

The more he studies the situation the more he is convinced that the country is "on the threshold of very notable and important changes in transportation methods, especially in the case of the railroads," Joseph B. Eastman, federal co-ordinator of transportation, said in a letter addressed to Lester Hooker, president of the National Association of Railroad and Utilities Commissioners, on October 9, expressing regret that he could not attend the annual convention of the association held this week at Cincinnati. "Adversity is one of the most powerful stimulants known," he said, "and it is having its effect. There is a veritable flood of transportation ideas, and, while it is probable that many of them are impractical, I believe that the flood will leave a residuum of sound and usable new methods and devices. My organization has capable men who are studying these problems with the utmost zeal and optimism, and I am very hopeful that their work will be fruitful."

Mr. Eastman also took occasion to point out that the restrictions on reduction in railroad employment included in the emergency transportation act have greatly limited the opportunities for issuing orders directed toward economy. When the act was under consideration and before it took its final form, he said, it was anticipated that the Co-ordinator might have occasion to issue numerous orders directed toward economy in railroad operation, and that these might extend to details of intrastate service. Because of this anticipation, it was very carefully provided that he should issue no order which would have the effect of relieving any carrier from the operation of the law of any state or of any order of any state commission until he had advised the state authorities that such order was in contemplation, and had given the commission or governor reasonable opportunity to present views and information bearing upon the contemplated order, nor unless such order was necessary, in his opinion, to prevent or remove an obstruction to or burden upon interstate commerce.

"Before the act became law, however, restrictions on reduction in railroad employment were included which greatly limit the practicable opportunities for the issuance of orders, so that no occasion for these prior conferences with state authorities has yet arisen. What I am now undertaking to do is to secure as thorough a survey as possible of the economies in operation which are reasonable and practicable through unification of terminal operations, joint use of facilities, pooling of service or traffic, and otherwise through greater co-operation of the carriers with each other. In addition, I am concentrating particularly on economies which do not involve saving in labor or which may offset it by increase in traffic."

He also referred to the study which the co-ordinator is directed to make of trans-

portation conditions generally with a view to recommending further legislation. Just as the states pioneered in early days in railroad regulation, he said, so they are now pioneering in the regulation of motor vehicles. "Whether the time has come for the federal government to enter this field and, if so, to what extent are among the important questions to which I must give attention. In making this study I know of nothing more necessary than to examine thoroughly into what the states have already done along these lines, and to reap the benefit of their experience. This I am endeavoring to do. My organization now has what I believe to be a complete record of the state motor-vehicle laws which have been enacted, and also a record of many which have been or are being proposed. A questionnaire has been sent to all of the state commissions to develop their experience and views, and in addition I have a field representative who is interviewing personally some of the commissions which have had the most experience in motor-vehicle regulation. A little later I shall wish to confer with the committees of the National Association which have been studying these problems.

"Some of these matters may seem to be local in character, but the need for greater uniformity and the intermingling of interstate and intrastate operations often give ultimately a national aspect to what begins as a purely local problem. It is no doubt for this reason that federal regulation so often trails after state regulation. The fostering and protection of interstate commerce which is incidental and unimportant at that outset grows in importance and sometimes becomes paramount in the end. Of course the need for federal regulation, where it develops, always brings in the attendant danger of undue centralization, a danger which can be counteracted only by utilizing state and local authorities to the full extent of their possibilities. I shall endeavor not to overlook this aspect of the questions which I am studying."

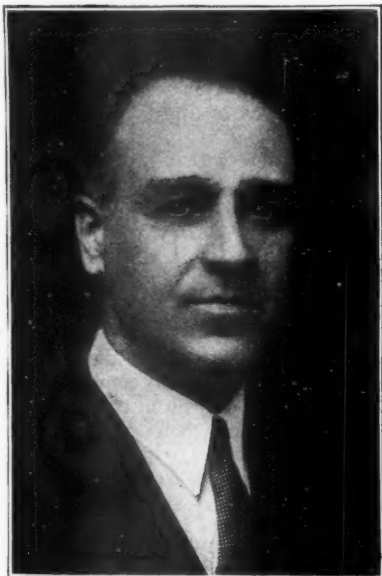
Railway Employment Increases

The number of employees of Class I railways (excluding switching and terminal companies) as of the middle of the month of September was 1,030,090, an increase of 3.57 per cent as compared with the number in the corresponding month of last year, according to reports compiled by the Interstate Commerce Commission. This was also an increase of 15,344 over the number reported in August, which was an increase of 3.48 per cent over the number in August last year. In September the number of employees in the maintenance of way and structures group showed an increase of 5.42 per cent as compared with September, 1932, while the maintenance of equipment group showed an increase of 6.16 per cent and the train and engine service group showed an increase of 10.04 per cent.

John E. Long Elected to Head National Safety Council

John E. Long, superintendent of safety of the Delaware & Hudson, was elected president of the National Safety Council at the twenty-second annual Safety Congress and Exposition which was held at

Chicago on October 2-6. Mr. Long, who is the second railroad man to be elected to the presidency of this organization, has been active in safety matters for years. He has been a member of the Executive committee and of the board of directors of the National Safety Council since 1928. During 1928-29 he was chairman of the Steam Railroad section and in 1930, he was



John E. Long

elected vice-president for territorial councils. Mr. Long has also been chairman of the Safety section of the American Railway Association, and in 1930-31, he served as chairman of the committee which effected the merger of the Steam Railroad section of the council with the Safety section, A. R. A.

Mr. Long was born on October 28, 1883, at New Scotland, N. Y., and entered railway service in 1901 as a telegrapher on the West Shore (now a part of the New York Central), then being appointed successively to the positions of station agent, traveling car agent, claim agent and assistant district claim agent. In 1914, he went to the Canadian National as safety agent at Moncton, N. B., where he remained until 1918, when he was made superintendent of safety of the Delaware & Hudson, which position he still holds.

Controversy as to Transfer of B. & M. and Maine Central Employees Settled

What for a time appeared as the first occasion for a contest over a ruling of the federal co-ordinator of transportation was removed on October 9 when Mr. Eastman issued Special Order No. 2 cancelling his Special Order No. 1, issued on July 26, appointing an examiner of the Interstate Commerce Commission to take testimony concerning claims of employees of the Boston & Maine and the Maine Central for expenses and property losses incurred by them in the transfer of certain of them from Boston to Portland and of others from Portland to Boston in connection with a plan for consolidating accounting work of the two railroads. He stated that he had been advised by the complainants that the matter had been voluntarily settled with the two railroads by

an agreement dated September 27. The railroads had contended that the action had been taken independent of any authority of the emergency transportation act, but Mr. Eastman took the position that the language in the law, providing for compensation to employees transferred "in carrying out the purposes" of the law, indicated a broad purpose that the benefits of economies achieved shall not be enjoyed by carriers without compensating employees for special expenses imposed upon them in bringing the economies to pass. It is understood that for a time some of the railroads had planned to contest any order issued by the co-ordinator in this case on this interpretation, but that the railroads concerned have agreed upon a plan of compensation satisfactory to the employees involved.

Early Approval of Bus Code Expected

The proposed code of fair competition for the motor bus industry, as submitted by the National Association of Motor Bus Operators but extensively revised in conference with officials of the National Recovery Administration, has been sent to the administrator with the approval of the deputy administrator, Malcolm Muir, and was expected to go during the week to General Johnson and from him to the President for final approval. In this form the code has been accepted by representatives of the association, but some changes might be made by the administrator or the President. It provides for an average of 48 hours a week for bus operators over a period of six weeks, with a maximum of 54 hours in any one week, and minimum wages at not less than the rate of \$12 to \$15 per week.

Chicago Car Foremen Elect Officers

The Car Foremen's Association of Chicago held its annual meeting Monday evening, October 9, at the Bismark Hotel, Chicago. At the short business session, which preceded the general entertainment program provided for members of the association, their families and guests, the following officers were elected for the coming year: President, F. L. Kartheiser, mechanical inspector, Chicago, Burlington & Quincy, Chicago; first vice-president, E. Mazurette, car foreman, Grand Trunk Western, Chicago; second vice-president, C. O. Young, assistant chief clerk, Illinois Central, Chicago. Officers re-elected included the treasurer, C. J. Nelson, superintendent of interchange, the Chicago Car Interchange Bureau, and the secretary, George K. Oliver, passenger car foreman, the Alton, Chicago.

Treasury Officers' Annual Meeting

The Railway Treasury Officers' Association held its annual meeting at the Palmer House, Chicago, on October 6-7. In addition to committee reports, a number of special reports and papers were read. Reports were made on investigations of the feasibility of establishing joint collection bureaus in New York and Chicago. These were discussed widely but there was considerable difference of opinion as to the value of such bureaus. Another subject discussed at length was the growing prac-

tice among banks of charging a fee of from 10 to 25 cents when cashing pay checks of employees, some members contending that it was the responsibility of employees to make arrangements for getting their checks cashed without charge, while others held that this was a problem to be solved by the railroads.

The principal speaker at the convention was Silas H. Strawn, past-president of the United States Chamber of Commerce, who talked on inflation. Mr. Strawn contended that, because of the economic structure of this country, an inflationary policy would be even less successful than in England, France or Germany, and might lead to serious consequences. L. W. Cox, secretary-treasurer of the Railway Treasury Officers' Association, read a paper entitled "Tax at Source on Dividends," in which he summarized the features of Section 213 of the National Industrial Recovery Act, which provides for the withholding of a tax for dividend payments.

Officers elected for the ensuing year are: President, George H. Pabst, Jr., treasurer, Pennsylvania; and vice-president, C. D. Cowie, treasurer, Canadian National. L. W. Cox, assistant treasurer, Norfolk & Western, was re-elected secretary and treasurer. Three members were elected to the Executive committee: P. Nichols, treasurer, Atlantic Coast Line; R. P. Ahrens, assistant treasurer, New York Central; and J. G. Walsh, treasurer, Erie (re-elected).

Pere Marquette and Employees Settle Labor Controversy

Co-ordinator Eastman on October 5 announced the settlement of a controversy between the Pere Marquette and its shop and office employees, concerning the right of employees to organize under the provisions of the Emergency Transportation Act, 1933. He made public correspondence showing that as a result of a conference held in his office on October 2 in the matter of complaints presented by the Brotherhood of Railway and Steamship Clerks, and the American Federation of Labor, Railway Employees Department, that influence was exerted in connection with the formation of the so-called Pere Marquette General Office Employees Association and the Pere Marquette Shop Crafts Association, it was agreed that all employees affected be given notices that the company would not interfere in any way with the organization of its employees. The notices, addressed to all mechanical department officers and shop craft employees and to all officers and general office employees, quoted from the language of a statement issued by Mr. Eastman on September 7 to the effect that "managements must keep their hands off, so far as labor organizations are concerned," with the added statement that "employees may refrain from joining any organization if they see fit to do so." To this was added: "The management of this company declares it to be its policy to conform in all respects with the law as summarized above by the Federal Co-ordinator of Transportation. In furtherance of this policy all employees are therefore left free to join the labor organization of their choice, notwithstanding any-

thing heretofore to the contrary," and the notice to office employees contained the further statement that "all authorizations to represent the general office clerical employees heretofore submitted to the management are hereby annulled. Within thirty days from the date herof, or as soon thereafter as practicable, a secret ballot will be taken, in accordance with a further notice to be announced, to determine the organization which, or agent whom, the employees desire to represent them."

Mr. Eastman wrote to John C. Shields, general solicitor of the company, that he concurred in and approved the settlement of the controversy that had been made.

Sees Danger in "Public Enemy" Attitude Toward Carriers

(Continued from page 535)

are under way will give you the impression that so much is being attempted that the work is likely to end up in confusion. My experience has been, however, that in such work the time comes when the issues resolve themselves and are found to be less complex than they at first seemed, if proper watch is kept for the forest instead of the trees. I believe that will be so in this case.

"An excellent simile, which, however, raises the question—what is the 'forest'

which is to be kept in view? In plain English, what is to be our national concept of railroad transportation? Are our railroads to be private enterprises or governmentally operated? If privately operated, are they to be regarded as public servants or public enemies? If regarded as public servants, are they to be encouraged or permitted to render the best service within the capacity of their nature, and are they to be paid a 'fair wage' for their service? In a word—what do we really intend to do with them?

"The Co-ordinator has had a good many years' experience in the 'regulation' of our railroads, and it has assuredly not escaped his attention that the history of railroad regulation in the United States has been up to now, with very few exceptions, a history of regulation in character far more punitive than remedial. It has proceeded upon a principle of maximum requirements and minimum concessions. Doubts have in the great majority of cases been resolved against the roads. The law has ever been changed in the direction of greater 'control' of management. In a word, while it is perhaps too much to say that the railroad has been frankly named and treated as a public enemy, it has, in fact, been treated in the main as a suspicious character, with a bad police record.

"Whether or not the railroad has deserved this is a purely irrelevant question; it is the fact which is important. The importance of the fact lies in that no system

What Size Trucks

Shall the size of trucks be limited by considerations of public safety, public convenience and public policy—or shall the strength of the pavements be the only test? "Strength of pavements," solemnly proclaims the Federal Bureau of Public Roads. The American Association of State Highway Officials willingly accepts this as final. And the operators of the big trucks throw up their caps and cheer.

But in some states Mr. John Public has had the audacity to insist that he has some rights too. He has risen to suggest that he doesn't give a tinker's what-not about the official pronouncements of these road-building bureaus and associations, and that he cares still less about what the highwaymen think.

"After all, I'm the poor sap who pays for the highways," says John Public. "I'm the chap who's going to say how my roads shall be used—or not used. If I don't want my wife mixing up in a life and death competition with a flock of rubber-tired box cars every time she takes the children to town, then I don't propose to stand for it.

"You can take your juggernauts, build your own roads, and run 'em just as big as you please. But so long as you're using my roads, you're going to play by my rules, and I don't have to look to these road-building bodies to tell me what the rules should be either."

This, of course doesn't fit in with the natural ambition of the road-builders

to spend all the tax dollars they can lay their hands on. It isn't hard to see that if the physical strength of the super-highways is to be the only measure of the size of trucks, a lot more highways will have to be built and rebuilt up to those super-standards. And what a swell road-building job that will be. What a perfectly delightful orgy of tax-spending. And this, regardless of the fact that much less expensive roadways will generally serve all purposes if the over-size, road-pulverizing inter-city trucks are barred.

This interference of John Public is also very distressing to the highwaymen. They strenuously object to any restrictions on their so-called rights to exploit John Public's highways. So when Texas, for instance, says that no truck can operate on the public highways with a load of more than 3½ tons, except where the load is being moved from farm to market, the highwaymen give vent to unrestrained indignation . . .

They want the Federal Bureau of Public Roads to tell Texas and the rest of the states what size trucks John Public will have to put up with—and even how much he can tax them . . . If anything were needed to rile up the fighting spirit of the real taxpayers and the great majority of highway users, this latest exhibition of the colossal crust of the highwaymen should certainly do it.

From an Editorial in the St. Cloud (Minn.) Times and Journal-Press

of privately owned transportation can continue to exist in this country under such a concept of its relations to the community, and no amount of 'fair talk' will avail to obscure that conclusion. Now if, next winter, we are going to follow the precedent of the last five and forty years of 'regulation' of our railroads and frame our new statutes in that spirit, the case for privately owned and operated railroads is hopelessly lost, and we may as well resign ourselves to government ownership and go to it once and for all.

"It is a change in our public and official 'psychology' at least as much as a change of laws that is needed in this matter. Unfortunately there is as yet precious little sign of any such change. It may be said that the railroads have not by their actions merited any such change. That, too, is irrelevant to the main point, and it is that point with which this writer is concerned. In what spirit are we going to legislate next winter? That is now the real question in this matter."

Construction

ATCHISON, TOPEKA & SANTA FE.—A contract has been awarded to Frenzel Brothers, Chicago, for the reconstruction of the bridge carrying this company's tracks over Ashland avenue, Chicago, this work being made necessary by the widening of the street. The new structure will be of I-beam construction with concrete abutments and will have a total span of 70 ft. with center and curb bents.

BALTIMORE & OHIO—PENNSYLVANIA.—The St. Clair County (Ill.) highway department is contemplating the construction of a reinforced concrete viaduct to carry Kingshighway boulevard over the tracks of these companies between Washington Park, Ill., and Fairmont City. The viaduct, which will cost about \$100,000, will be 44 ft. wide and will include 10 spans of 60 ft. each.

ERIE—LEHIGH VALLEY.—An order directing that the structure carrying Pennsylvania avenue over the Erie and the Lehigh Valley tracks in Waverly, Tioga county, N. Y., shall be reconstructed has been adopted by the New York Public Service Commission. The estimated cost of the work is about \$25,000. The commission's order required the Erie to prepare the plans and carry out the work.

NORTHERN PACIFIC.—This company is now engaged in making preliminary surveys for a proposed line to the site of the Grand Coulee dam on the Columbia river, which forms part of a proposed water power and irrigation project for the development of the Columbia basin. The proposed line would extend from Coulee, Wash., on the Northern Pacific to the head of the Grand Coulee, just above the site of the proposed dam and would cost approximately \$750,000. This survey has been made at the request of proponents of the Grand Coulee project, and no decision to build the line has yet been made.

Equipment and Supplies

LOCOMOTIVES

THE LOUISIANA & ARKANSAS is inquiring for three locomotives of the 2-8-2 type.

THE NORTHERN PACIFIC has requested bids for the immediate construction of 12 passenger locomotives. The locomotives will be of the 4-8-4, or Northern, type, and each will have a tractive power, including booster, of 82,600 lb.; the tenders will have a capacity of 27 tons of coal and 20,000 gal. of water. The total weight of each locomotive, including the tender, will be 855,000 lb. and the overall length will be 108 ft. These locomotives will be used to haul the North Coast Limited between Jamestown, N. D., and Missoula, Mont., a distance of 904 miles, without change. To prepare for the operation of these locomotives, it will be necessary for the railroad to make substantial improvements in fixed property in the district in which they are to operate. The total estimated expenditure for the locomotives and these improvements will be approximately \$1,750,000.

FREIGHT CARS

THE ALASKA RAILROAD, reported in the *Railway Age* of September 16 as inquiring for ten dump cars and ten ballast coal cars, has given an order for ten 25-yd. Western drop door air dump cars to the Western Wheeled Scraper Company and an order for ten 50-ton ballast cars to the Pacific Car & Foundry Company.

IRON AND STEEL

THE NORFOLK & WESTERN is in the market for 10,000 tons of 131-lb. steel rail.

THE TORONTO, HAMILTON & BUFFALO has placed an order for 1,500 tons of 105-lb. rail with the Algoma Steel Company according to announcement of President F. E. Williamson, who said this completed the rail requirements of the New York Central lines and its allied and affiliated companies for the year.

THE CHICAGO, BURLINGTON & QUINCY has ordered six 65-ft. girder spans, totaling 250 tons, for two bridges at Denver, Colo., from the McClintic-Marshall Corporation. This road has also ordered a 101-ft. through-girder span and an I-beam span, about 40 ft. long, from the American Bridge Company. The latter spans, which are for a bridge near Gregory, Mo., total 140 tons.

MISCELLANEOUS

THE DELAWARE, LACKAWANNA & WESTERN.—The Gould Storage Battery Company, Depew, N. Y., will furnish one set of Gould Armored Kathode batteries for use on an oil-electric locomotive recently bought by the Delaware, Lackawanna & Western from the American Locomotive Company. A previous order for three

battery equipments was furnished by this company for locomotives on the same railroad.

THE PENNSYLVANIA has put to work recently 1,000 men, in addition to the 10,000 which were added since June 1, as was announced in the *Railway Age* of September 9. Many others who were on part-time employment have had their working hours extended. Part of the additional employees are in the transportation service operating trains required for increased traffic; others are at work on the roadbed, and some are in shop work.

Supply Trade

K. C. Gardner, after an extended leave of absence has resumed his duties as vice-president in charge of sales of the **Greenville Steel Car Company**, Greenville, Pa. **J. T. Brennan** continues in charge of miscellaneous sales.

W. H. Elliott, formerly signal engineer of the New York Central, Buffalo and East, has been appointed publicity representative of the **Union Switch & Signal Company** and the **General Railway Signal Company**, with office at 347 Madison avenue, New York City. Mr. Elliott succeeds the late Henry M. Sperry. A sketch of Mr. Elliott's career was published in the *Railway Age* of September 9, page 384.

Herbert C. Ryding, since 1894 connected with iron and steel interests, now comprehended in the subsidiary companies of the **United States Steel Corporation** and since 1907 with the **Tennessee Coal, Iron & Railroad Company**, Birmingham, Ala., in which company he succeeded as president in February, 1930, will retire on October 15 under the pension rules of the United States Steel Corporation. The Finance Committee of the Corporation has recommended that **Robert Gregg**, vice-president of the Tennessee Coal, Iron & Railroad Company, be elected to the presidency of that company to succeed Mr. Ryding. Mr. Ryding was born at Lymington, Hampshire, England, receiving his university training at Heidelberg, Germany. He entered the steel industry with Townsend, Wood & Company, South Wales and in 1885 came to America and was associated with A. J. Moxham, operating rolling mills at Birmingham and at Louisville. Mr. Ryding later was transferred to the Johnstown Steel Company, Johnstown, Pa., subsequently serving at Lorain, Ohio, as superintendent and in 1907 went with the Tennessee Coal, Iron & Railroad Company as assistant to the vice-president, being advanced to the vice-presidency on June 1, 1917, and later to the presidency.

Robert Gregg was born 48 years ago at Atlanta, Ga. He attended Georgia School of Technology and was graduated from Cornell University. In August 1907 he began his business career with the Atlanta Steel Company of Alabama, remaining with that company and its successor until August, 1932, when he resigned to go as vice-president of the Tennessee Coal, Iron & Railroad Company.

Financial

ATCHISON, TOPEKA & SANTA FE.—Abandonment.—The Gulf Colorado & Santa Fe and the Texas & Gulf have been authorized by the Interstate Commerce Commission to abandon a branch line extending from Gary, Tex., southwesterly to a point near Gribbsby, 27.2 miles. The latter company has also been authorized to abandon operation under trackage rights over 0.4 mile of the line of the Houston East & West Texas, a Southern Pacific subsidiary, in Timpson, Tex.

CHESAPEAKE & OHIO.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a line extending from a point near Logan, Ohio, to Monday Creek Jct., 8.6 miles.

CHICAGO, BURLINGTON & QUINCY.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon a branch line from Yutan, Neb., to Allis, 4.87 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon the line of the White & Black River from Brinkley, Ark., to Newport, 53 miles, and a branch from Wyville, Ark., to Gregory, 5.9 miles.

ILLINOIS CENTRAL.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a line extending from Jeffries Mine, Ill., to a junction with the Chicago & Eastern Illinois near Johnston City, 2.5 miles, and to abandon operation under trackage rights over the C. & E. I. between said junction and Johnston City, 1.5 miles.

LOUISIANA SOUTHERN.—Bonds.—The Interstate Commerce Commission has authorized this company to extend from September 1, 1931 to September 1, 1941, the maturity date of \$1,000,000 of 6 per cent first mortgage refunding bonds, the holders of practically all the bonds having assented to the plan.

LOUISVILLE & NASHVILLE.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its branch lines between Fort Estill, Ky., and Lancaster, 24 miles, and between Napier Junction, Tenn., and Napier, 11 miles.

MORRISTOWN & ERIE.—R. F. C. Loan.—This company has withdrawn its application to the Reconstruction Finance Corporation for a loan of \$150,000.

SANTA FE, SAN JUAN & NORTHERN.—R. F. C. Loan Denied.—Division 4 of the Interstate Commerce Commission has denied approval of the receiver's application for a loan of \$50,000 from the Reconstruction Finance Corporation for rehabilitation purposes.

SOUTHERN PACIFIC.—Acquisition.—The Southern Pacific Railroad has applied to the Interstate Commerce Commission for authority to acquire control of the Tucson & Nogales by purchase of its 660

shares of stock from the Southern Pacific Company.

Average Prices of Stocks and of Bonds

	Oct. 10	Last week	Last year
Average price of 20 representative railway stocks..	40.74	38.35	22.38
Average price of 20 representative railway bonds..	68.30	67.16	60.24

Dividends Declared

Kansas City, St. Louis & Chicago.—Preferred, \$1.50, quarterly, payable November 1 to holders of record October 20.

Northern R. R. of New Hampshire.—\$1.50, quarterly, payable October 31, to holders of record October 6.

Piedmont & Northern.—75c, quarterly; Extra, \$3.00, both payable October 10 to holders of record September 30.

Richmond, Fredericksburg & Potomac.—7 Per Cent Guaranteed, \$3.50, semi-annually; 6 Per Cent Guaranteed, \$3.00, semi-annually, both payable November 1 to holders of record October 31.

Warren.—Guaranteed, \$1.75, quarterly, payable October 16 to holders of record October 6.

Railway Officers

EXECUTIVE

J. D. Mortimer has been elected chairman of the board of the Illinois Terminal Railroad System, with headquarters at Chicago, replacing **J. F. Fogarty**.

H. F. Lambert has been appointed vice-president and general manager of the Great Western, with headquarters at Denver, Colo., to succeed **E. R. Griffin**, deceased.

FINANCIAL, LEGAL AND ACCOUNTING

C. A. Peterson, assistant to the comptroller of the Chicago, Milwaukee, St. Paul & Pacific, has been promoted to auditor of expenditures, with headquarters as before at Chicago, to succeed **E. P. Willey**, deceased.

C. F. DeWitt, assistant secretary of the Illinois Terminal Railroad System, has been elected secretary with headquarters as before at Chicago, to succeed **J. F. Holmes**. **H. E. Johnson**, assistant comptroller, has been elected treasurer, to succeed **A. J. Berta**, and will also assume the duties of assistant secretary to replace Mr. DeWitt.

OPERATING

S. F. Ayler has been appointed assistant trainmaster on the Joplin division of the Missouri Pacific, with headquarters at Pittsburg, Kan.

A. F. Winkel has been appointed trainmaster of the North Texas district of the Missouri-Kansas-Texas of Texas, with headquarters at Denison, Tex.

Tracy Lynn, assistant to general manager on the Illinois Terminal, has been appointed to the newly-created position of superintendent of transportation, with head-

quarters as before at St. Louis, Mo., and his former position has been abolished.

T. F. Gardner, superintendent of the Missouri-Kansas-Texas, with headquarters at Muskogee, Okla., has been appointed superintendent of transportation, with headquarters at Denison, Tex., succeeding **O. W. Campbell**, who has been assigned to other duties. **C. W. Watts**, superintendent of the Northwestern district, with headquarters at Wichita Falls, Tex., has been transferred to the Southern district in the same position, with headquarters at Muskogee, Okla., replacing Mr. Gardner, and **F. H. Schaller** has been appointed superintendent of the Northwestern district with headquarters at Wichita Falls, succeeding Mr. Watts.

MECHANICAL

Otto Jabelmann, who has been appointed assistant general superintendent motive power and machinery in charge of the car department of the Union Pacific System, with headquarters at Omaha, Neb., has been connected with the Union Pacific for 27 years. He was born on July 24, 1890, at Cheyenne, Wyo., and entered the service of the Union Pacific as a caller at Cheyenne on September 22, 1906. Subsequently, Mr. Jabelmann served as an ap-



Otto Jabelmann

prentice, machinist helper, machinist and assistant enginehouse foreman at Cheyenne, general foreman at Laramie, Wyo., machinist at North Platte, Neb., and enginehouse foreman and district foreman at Cheyenne. On August 1, 1925, he was promoted to superintendent of shops at the same point, and on January 1, 1929, he was transferred to Omaha. He was holding the latter position at the time of his recent appointment. Mr. Jabelmann's service with the Union Pacific has been continuous except for the period from May to August, 1917, when he was a machinist on the Southern Pacific at San Francisco, Cal.

OBITUARY

Arthur G. Baker, who retired in 1915 as division engineer on the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Lewistown, Mont., died at Los Angeles, Cal., on September 14.



SCRAP OBSOLETE POWER

One out of every five steam locomotives is awaiting classified repairs. More serviceable locomotives will soon be needed to handle increasing traffic. • Repairing the old ones will simply perpetuate obsolete designs incapable of efficient and economical operation, regardless of how much you spend on them.

LIMA



OHIO

Revenues and Expenses of Railways

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1933

Name of road	Av. mileage operated during period	Operating revenues				Operating expenses				Operating ratio	Total	Net from railway operation	Operating income	Net railway operating income	Net operating income, 1932
		Freight	Passenger	Total (inc. misc.)	Maintenance of way and structures	Equipment	Traffic	Trans- portation	General						
Akron, Canton & Youngstown.....Aug. 171		\$159,985	\$9	\$170,318	\$22,346	\$18,434	\$7,059	\$44,164	\$7,389	58.4	\$99,392	\$70,926	\$62,311	\$44,315	\$4,919
Alton.....Aug. 8 mos. 171		1,027,742	135	1,083,066	131,089	114,084	61,973	302,638	70,588	62.3	675,237	407,827	320,729	227,620	146,731
Alton.....Aug. 8 mos. 978		903,144	273,861	1,325,813	155,394	136,372	46,774	426,377	40,755	61.6	817,236	508,587	410,794	270,291	54,161
Alton.....Aug. 8 mos. 979		6,442,947	1,268,824	8,798,456	1,002,429	1,006,866	370,260	3,333,075	333,515	69.7	6,133,661	2,664,795	2,032,565	1,036,849	46,605
Alton & Southern.....Aug. 31		99,326	7,258	7,643	5,459	28,919	3,913	53.55	53,192	46,134	41,324	36,889	19,728
Alton & Southern.....Aug. 8 mos. 31		669,431	51,867	51,866	40,371	213,329	32,711	59.02	393,434	274,457	232,347	196,639	127,383
Atchison, Topeka & Santa Fe.....Aug. 9/29		7,104,538	1,137,115	8,967,451	1,224,220	2,009,854	239,949	2,763,409	355,458	74.8	6,110,530	2,436,881	1,452,153	1,563,832	2,433,462
Atchison, Topeka & Santa Fe.....Aug. 8 mos. 9/29		50,151,017	7,723,262	63,437,165	8,434,918	15,235,177	2,446,992	22,287,060	2,963,517	81.0	51,354,022	12,083,143	5,200,491	5,926,658	8,935,143
Gulf, Colorado & Santa Fe.....Aug. 1,955		861,823	50,031	976,624	155,561	236,572	48,689	361,072	60,682	88.3	861,816	114,708	127,939	34,435	103,051
Gulf, Colorado & Santa Fe.....Aug. 8 mos. 1,955		7,146,352	329,747	8,010,027	1,373,609	1,922,143	393,637	3,001,618	510,032	88.3	7,188,774	821,233	132,073	598,827	116,681
Panhandle & Santa Fe.....Aug. 1,878		625,694	22,547	693,363	85,424	141,771	17,766	190,734	29,482	72.2	466,071	227,292	187,668	116,251	114,520
Panhandle & Santa Fe.....Aug. 8 mos. 1,878		4,836,093	182,859	5,378,674	770,995	1,127,194	142,557	1,593,748	247,415	72.2	3,882,204	1,496,470	1,154,186	565,833	156,009
Atlanta & West Point.....Aug. 93		85,740	13,517	113,099	24,279	25,027	5,921	46,760	7,317	98.5	111,392	1,707	4,099	17,627	29,914
Atlanta & West Point.....Aug. 8 mos. 93		620,382	110,482	852,035	153,013	183,618	53,495	373,266	53,478	97.7	832,418	19,617	39,125	139,812	224,260
Western of Alabama.....Aug. 133		76,527	13,245	99,339	25,938	29,510	6,148	40,821	5,761	110.5	109,811	10,472	1,895	13,984	17,941
Western of Alabama.....Aug. 8 mos. 133		618,456	117,653	821,829	164,614	228,586	54,016	325,434	52,999	102.0	838,150	16,321	75,728	42,131	155,411
Atlanta, Birmingham & Coast.....Aug. 639		193,191	6,355	224,967	43,472	50,288	17,041	86,948	14,699	98.5	221,660	3,307	10,384	14,407	74,888
Atlanta, Birmingham & Coast.....Aug. 8 mos. 639		1,520,499	32,067	1,773,374	305,769	339,650	153,649	718,077	119,854	97.0	1,719,923	53,451	56,881	143,007	623,155
Atlantic Coast Line.....Aug. 5,144		1,934,902	209,090	2,381,573	396,745	654,055	91,304	1,036,733	122,139	97.1	2,311,838	67,735	80,777	17,051	497,703
Atlantic Coast Line.....Aug. 8 mos. 5,144		20,963,940	3,128,523	26,806,221	3,184,750	4,925,699	864,460	9,270,165	1,022,978	72.5	19,447,763	7,358,458	4,253,262	3,397,835	266,456
Charleston & Western Carolina.....Aug. 342		147,768	7,488	152,373	25,964	21,902	4,684	48,858	5,667	70.3	107,075	45,298	25,274	27,948	3,397
Charleston & Western Carolina.....Aug. 8 mos. 342		1,259,312	7,678	1,460,257	153,278	165,287	44,471	406,155	38,304	63.8	829,495	470,762	333,494	327,578	87,070
Baltimore & Ohio.....Aug. 6,403		12,280,886	1,070,206	14,120,943	1,150,424	2,435,826	348,206	3,980,603	383,577	61.0	5,611,015	5,309,238	4,791,015	4,029,145	2,159,398
Baltimore & Ohio.....Aug. 8 mos. 6,403		72,699,781	6,150,307	84,236,197	6,449,465	14,132,140	2,622,022	27,940,145	4,317,419	66.7	26,170,377	28,065,830	23,474,891	19,300,418	12,843,156
Baltimore & Ohio Chic. Term. ....Aug. 84		286,481	18,338	40,672	1,370	138,788	10,922	75.3	215,795	70,886	16,455	93,619	75,431
Baltimore & Ohio Chic. Term. ....Aug. 8 mos. 84		2,037,322	143,912	306,333	11,750	1,062,553	99,455	81.7	1,663,411	373,911	77,605	750,698	643,585
Staten Island Rapid Transit.....Aug. 23		53,132	92,896	155,452	10,028	12,980	76,216	113,270	12,596	72.9	113,270	42,182	28,222	14,537	2,099
Staten Island Rapid Transit.....Aug. 8 mos. 23		400,630	681,514	1,141,563	62,699	99,116	13,076	604,339	95,974	76.7	875,204	266,359	151,334	26,461	4,012
Bangor & Aroostook.....Aug. 603		193,570	11,415	221,893	87,366	83,688	4,182	82,885	22,628	127.0	281,685	59,792	76,222	65,632	122,331
Bangor & Aroostook.....Aug. 8 mos. 614		3,638,661	136,741	3,931,429	657,133	659,970	34,474	855,338	184,744	61.0	2,397,427	1,534,002	1,174,876	1,138,881	1,252,523
Belt Ry. Co. of Chicago.....Aug. 54		388,216	31,877	34,784	2,460	156,147	7,795	60.0	155,153	110,186	110,186	138,920	138,920
Belt Ry. Co. of Chicago.....Aug. 8 mos. 54		2,617,949	172,424	241,870	19,784	1,146,756	72,751	63.2	1,653,585	964,364	624,072	1,106,247	778,245
Bessemer & Lake Erie.....Aug. 225		1,048,655	534	1,062,167	77,337	244,371	10,793	154,596	33,582	49.0	520,643	541,524	557,486	541,275	51,362
Bessemer & Lake Erie.....Aug. 8 mos. 225		4,049,861	5,937	4,125,884	345,855	1,251,943	81,439	836,648	255,702	68.0	2,805,324	1,320,560	1,170,753	1,208,238	820,668
Boston & Maine.....Aug. 2,081		2,762,993	602,638	3,903,452	460,608	601,156	57,259	1,385,862	167,780	68.7	2,679,893	1,233,359	937,781	769,710	612,512
Boston & Maine.....Aug. 8 mos. 2,081		19,013,273	4,406,606	27,540,097	3,256,429	4,088,230	471,996	10,540,303	1,351,065	71.8	19,763,372	7,776,725	5,916,350	4,784,503	4,688,764
Brooklyn Eastern Dist. Term. ....Aug. 11		84,933	.....	86,337	5,076	10,786	263	25,149	5,562	54.2	46,836	39,501	33,643	33,643	24,638
Brooklyn Eastern Dist. Term. ....Aug. 8 mos. 11		612,903	.....	622,456	38,618	69,368	2,215	181,601	49,774	54.9	341,576	280,880	231,578	231,578	182,494
Burlington-Rock Island .....Aug. 280		50,559	8,843	59,402	9,814	10,986	2,997	34,015	6,713	110.5	64,452	6,104	10,824	18,513	19,796
Burlington-Rock Island .....Aug. 8 mos. 280		493,879	8,637	532,652	80,986	69,670	24,443	280,121	56,935	96.1	512,082	20,570	17,867	92,957	161,787
Cambria & Indiana.....Aug. 37		108,646	.....	108,842	12,005	36,960	365	11,645	8,716	64.03	69,691	39,151	21,887	99,392	49,396
Cambria & Indiana.....Aug. 8 mos. 37		813,156	.....	813,156	67,534	315,087	3,029	95,210	63,488	66.81	544,348	270,401	151,985	635,593	483,670
Canadian Pac. Lines in Maine.....Aug. 233		61,002	18,470	88,596	48,955	19,337	4,319	39,726	3,689	130.9	116,046	27,450	33,450	46,822	67,308
Canadian Pac. Lines in Maine.....Aug. 8 mos. 233		899,512	121,551	1,101,073	234,646	212,121	34,147	449,886	29,815	87.2	960,615	140,458	82,447	81,655	203,589
Canadian Pac. Lines in Vermont.....Aug. 85		60,206	14,715	91,108	16,275	17,422	1,934	49,142	2,443	95.7	87,216	3,892	1,608	19,694	28,618
Canadian Pac. Lines in Vermont.....Aug. 8 mos. 85		389,735	87,563	597,309	123,989	138,038	15,422	394,034	20,110	116.1	693,593	96,284	140,287	277,027	314,995
Central of Georgia.....Aug. 1,944		898,356	85,601	1,076,633	128,852	230,412	44,314	408,020	66,439	81.8	880,478	196,158	129,807	108,520	76,196
Central of Georgia.....Aug. 8 mos. 1,944		6,638,980	665,735	8,168,987	1,005,949	1,696,342	382,274	3,221,208	538,691	84.2	6,874,925	1,294,062	629,723	406,730	322,618
Central of New Jersey.....Aug. 691		1,882,909	487,445	2,527,653	157,551	409,404	42,798	971,771	80,950	66.3	1,674,603	853,050	356,907	1,275,177	82,020
Central of New Jersey.....Aug. 8 mos. 691		13,654,197	2,964,746	17,794,966	1,250,336	3,272,322	333,988	7,211,132	732,661	72.5	12,897,361	4,897,605	2,289,880	1,672,467	1,530,501
Central of Vermont.....Aug. 457		398,003	53,630	492,016	67,656	84,288	15,487	191,790	20,152	77.1	379,504	112,512	96,787	81,826	39,582
Central of Vermont.....Aug. 8 mos. 457		2,669,306	293,531	3,311,889	591,426	647,557	113,183	1,443,391	159,855	89.2	2,955,768	356,121	231,052	175,974	90,267
Chesapeake & Ohio.....Aug. 3,155		10,136,137	232,340	10,766,589	1,226,127	1,742,658	180,528	2,104,784	267,735	51.4	5,533,061	5,233,528	4,181,912	4,095,347	3,071,641
Chesapeake & Ohio.....Aug. 8 mos. 3,148		65,118,517	1,617,083	69,243,996	7,922,844	12,325,921	1,312,053	15,120,655	2,221,079	56.4	30,041,592	30,202,404	22,845,295	16,340,850	16,340,850
Chicago & Eastern Illinois.....Aug. 938		874,404	177,702	1,161,362	132,027	107,252	48,535	83,640	51,328	71.9	834,640	326,722	231,262	133,150	105,324
Chicago & Eastern Illinois.....Aug. 8 mos. 938		6,234,958	792,468	7,804,877	975,085	1,114,335	395,063	3,328,686	429,012	80.6	6,290,668	1,514,269	861,028	1,072,228	1,209,510

Continued on next left-hand page

Comfort...Speed...On-Time Runs of the **Twentieth Century Limited** *Require* **BOOSTER POWER**

Nothing has been left undone in giving the "Twentieth Century Limited" every luxury and every mechanical facility to promote comfort and speed.

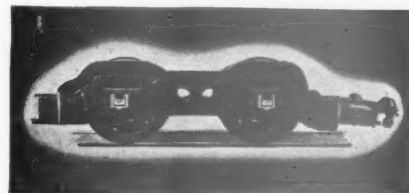


Among the important factors in obtaining these essentials is The Locomotive Booster.

There is no jerking, no taking of slack as the "Century" pulls out of a station. The start is almost imperceptible. Smoothly, yet rapidly, the train accelerates until the engineer shuts-off the Booster, turning the work over entirely to the main engine.

For those traveling on this famous train the Booster promotes riding

comfort. It helps maintain the fast operating schedule. Even though the "Century" encounters few grades, the Booster pays its way in good-will, in on-time runs and in the economical locomotive operation it makes possible.



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK

CHICAGO

MONTREAL

We Have Tried Them All!



THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

As part of its service to the railroads, the American Arch Company, for 25 years, has experimented constantly to improve Arch Brick material and design.

Metallic reenforced Arches; air-induction Arches; light-weight materials; unusual mixes including non-refractory materials—all of these and many more have been carefully considered and their merits weighed.

American Arch Company is constantly conducting research and experiment in its policy of leaving no stone unturned to supply American railroads with the finest of Locomotive Arches.

**HARBISON-WALKER
REFRACTORIES CO.**
Refractory Specialists



AMERICAN ARCH CO.
INCORPORATED
*Locomotive Combustion
Specialists* * * *

Revenues and Expenses of Railways

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues				Operating expenses				Operating ratio	Net from railway operation		Net railway operating income, 1932
		Freight	Passenger	Total (inc. misc.)	Way and structures	Traffic	Trans- portation	General	Total		Operating income	Net railway operating income	
Chicago & Erie.....Aug.	269	\$725,421	\$53,724	\$779,145	\$96,393	\$22,541	\$204,217	\$32,317	\$461,111	55.6	\$332,290	\$90,213	\$45,334
Chicago & Erie.....8 mos.	269	5,259,751	194,146	5,453,897	614,183	178,355	1,526,627	257,621	3,305,320	56.7	2,519,311	625,759	147,526
Chicago & Erie.....Aug.	269	5,259,751	194,146	5,453,897	614,183	178,355	1,526,627	257,621	3,305,320	56.7	2,519,311	625,759	147,526
Chicago & Erie.....8 mos.	269	5,259,751	194,146	5,453,897	614,183	178,355	1,526,627	257,621	3,305,320	56.7	2,519,311	625,759	147,526
New Jersey & New York.....Aug.	45	126,996	496,944	623,940	61,667	11,050	374,553	27,682	669,038	104.8	-70,636	-217,150	-169,297
New Jersey & New York.....8 mos.	45	126,996	496,944	623,940	61,667	11,050	374,553	27,682	669,038	104.8	-70,636	-217,150	-169,297
N. Y., Susquehanna & Western.....Aug.	131	261,348	26,475	287,823	34,079	4,243	105,960	10,979	214,116	71.3	86,093	47,788	32,077
N. Y., Susquehanna & Western.....8 mos.	131	1,793,859	217,086	2,010,945	212,708	37,256	823,564	85,540	1,556,368	73.5	320,415	212,331	131,150
N. Y., Susquehanna & Western.....Aug.	131	1,793,859	217,086	2,010,945	212,708	37,256	823,564	85,540	1,556,368	73.5	320,415	212,331	131,150
N. Y., Susquehanna & Western.....8 mos.	131	1,793,859	217,086	2,010,945	212,708	37,256	823,564	85,540	1,556,368	73.5	320,415	212,331	131,150
Florida East Coast.....Aug.	839	1,41,979	52,456	194,435	103,699	17,133	122,504	36,459	403,429	175.2	-173,196	-264,858	-28,321
Florida East Coast.....8 mos.	839	3,270,904	1,100,524	4,371,428	1,023,490	154,713	1,328,909	310,382	3,686,497	74.6	1,522,135	648,511	310,799
Fort Smith & Western.....Aug.	249	41,029	1,362	42,391	7,554	4,500	17,109	3,823	45,646	99.4	291	-6,506	-10,094
Fort Smith & Western.....8 mos.	249	358,465	7,418	365,883	71,345	34,698	145,356	31,961	383,000	96.8	12,796	-37,574	-91,752
Galveston Wharf.....Aug.	11	.....	.....	.....	28,076	3,025	20,674	4,468	63,515	87.9	8,742	-9,163	2,583
Galveston Wharf.....8 mos.	11	.....	.....	.....	238,822	25,207	159,855	44,000	525,326	75.5	170,584	14,976	214,675
Georgia Railroad.....Aug.	329	219,152	16,986	236,138	28,825	16,265	101,786	11,917	209,417	82.8	38,622	51,730	29,883
Georgia Railroad.....8 mos.	329	1,777,300	100,550	1,877,850	223,283	128,807	862,082	98,467	1,675,196	82.7	349,677	374,991	119,893
Georgia & Florida.....Aug.	463	155,609	1,701	157,310	113,765	8,286	36,926	5,744	87,529	54.0	74,562	69,559	67,544
Georgia & Florida.....8 mos.	463	623,770	9,815	633,585	131,883	64,357	254,255	49,340	614,670	91.8	55,228	6,623	-160,240
Grand Trunk Western.....Aug.	1,008	1,183,181	86,625	1,269,806	241,858	33,994	568,482	75,041	1,220,491	89.0	151,398	82,406	-278,589
Grand Trunk Western.....8 mos.	1,008	9,031,266	425,536	9,456,802	1,661,309	284,874	4,386,766	613,100	9,203,356	90.5	963,725	307,385	-1,519,486
Canadian Nat'l Lines in New Eng.....Aug.	172	549,079	56,998	606,077	157,517	24,279	414,661	68,679	814,953	118.8	-128,857	-526,009	-653,020
Canadian Nat'l Lines in New Eng.....8 mos.	172	4,946,956	569,956	5,516,912	1,404,446	24,279	414,661	68,679	814,953	118.8	-128,857	-526,009	-653,020
Great Northern.....Aug.	8,452	6,241,513	378,450	6,619,963	663,932	146,936	1,823,775	214,657	3,969,804	55.5	2,514,571	2,384,167	362,392
Great Northern.....8 mos.	8,452	31,942,175	2,431,355	34,373,530	3,313,544	1,246,887	12,895,582	1,544,905	26,557,413	70.2	11,285,029	5,421,870	-3,701,169
Green Bay & Western.....Aug.	234	99,556	1,096	100,652	106,663	5,008	38,557	2,410	63,953	80.5	20,794	14,488	16,146
Green Bay & Western.....8 mos.	234	696,792	7,383	704,175	154,813	35,725	308,891	20,556	63,953	80.5	107,309	46,387	16,146
Gulf & Ship Island.....Aug.	307	71,321	5,398	76,719	13,219	1,891	35,517	4,422	74,648	87.3	10,880	-6,125	-25,584
Gulf & Ship Island.....8 mos.	307	589,533	46,976	636,509	96,780	15,841	319,936	32,232	589,061	82.3	126,748	-101,363	-204,844
Gulf, Mobile & Northern.....Aug.	963	432,294	17,939	450,233	42,918	27,514	746,844	129,843	1,701,676	59.52	186,558	157,558	43,559
Gulf, Mobile & Northern.....8 mos.	963	2,922,541	75,685	2,998,226	288,566	167,076	1,494,450	129,843	1,701,676	68.47	785,690	394,945	-192,446
Illinois Central.....Aug.	5,014	5,264,565	1,046,683	6,311,248	728,894	134,279	2,274,657	328,222	4,926,056	72.5	1,866,446	1,456,575	937,831
Illinois Central.....8 mos.	5,014	39,650,721	5,316,677	44,967,398	3,687,653	1,193,233	17,814,897	2,313,359	35,136,597	71.3	14,115,731	9,300,916	6,596,425
Yazoo & Mississippi Valley.....Aug.	1,658	894,520	5,649	900,169	115,442	15,661	364,535	47,158	696,994	69.2	310,256	203,323	8,796
Yazoo & Mississippi Valley.....8 mos.	1,658	6,350,601	410,790	6,761,391	525,477	158,741	2,950,147	331,319	5,014,467	68.7	2,284,408	1,340,163	-210,542
Illinois Central System.....Aug.	6,673	6,159,085	1,101,332	7,260,417	844,336	152,940	2,639,192	375,380	5,623,050	72.1	2,176,702	1,659,898	929,035
Illinois Central System.....8 mos.	6,673	46,001,302	5,727,367	51,728,669	4,213,130	1,351,974	20,765,044	2,644,522	40,151,064	71.0	16,400,139	11,865,306	6,385,882
Illinois Terminal.....Aug.	540	2,612,464	380,642	2,993,106	368,989	114,319	1,111,493	133,676	2,111,644	68.16	986,308	789,878	344,521
Kansas City Southern.....Aug.	783	656,211	15,470	671,681	145,874	40,493	219,601	61,494	541,528	71.1	219,701	143,596	50,508
Kansas City Southern.....8 mos.	783	4,805,158	109,918	4,915,076	556,229	313,441	1,725,412	477,810	4,070,096	72.6	1,534,412	924,205	475,366
Texarkana & Fort Smith.....Aug.	98	528,998	8,455	537,453	64,875	43,647	196,324	65,127	434,678	67.6	208,760	147,425	818
Kansas, Oklahoma & Gulf.....Aug.	326	171,631	326	171,957	9,316	7,086	33,207	7,573	79,911	45.8	94,461	62,240	23,980
Kansas, Oklahoma & Gulf.....8 mos.	326	1,134,887	2,350	1,137,237	86,379	54,101	271,754	60,899	603,768	52.1	554,582	419,609	216,369
Lake Superior & Ishpeming.....Aug.	160	283,040	65	283,095	162,139	3,952	182,932	5,165	487,862	50.8	471,564	336,810	131,194
Lake Superior & Ishpeming.....8 mos.	160	840,999	588	841,587	152,518	4,045	182,932	44,080	487,862	50.8	471,564	336,810	131,194
Lake Terminal.....Aug.	12	.....	.....	.....	7,447	.....	33,383	2,710	50,823	47.7	55,800	52,810	30,942
Lake Terminal.....8 mos.	12	.....	.....	.....	33,062	.....	160,839	20,483	253,468	58.3	181,164	157,179	165,031
Lehigh & Hudson River.....Aug.	96	128,048	2,250	130,298	19,636	3,054	40,590	6,116	88,695	66.4	44,837	31,735	9,148
Lehigh & Hudson River.....8 mos.	96	889,907	2,250	892,157	89,844	26,077	316,448	50,176	637,378	67.3	310,167	216,321	60,117
Lehigh & New England.....Aug.	228	1,928,737	3,427	1,932,164	235,929	38,976	702,659	125,683	1,522,725	80.8	47,066	38,682	70,498
Lehigh & New England.....8 mos.	228	15,511,578	23,098	15,534,676	1,675,049	102,101	1,351,562	116,687	2,617,278	72.9	970,300	688,791	108,716
Lehigh Valley.....Aug.	1,360	21,114,009	1,517,521	22,631,530	2,018,265	848,461	10,486,587	976,225	19,617,463	79.8	4,955,404	3,155,387	1,160,166
Louisiana & Arkansas.....Aug.	608	336,462	10,057	346,519	58,265	19,040	83,194	16,262	233,192	62.8	138,082	116,388	70,612
Louisiana & Arkansas.....8 mos.	608	2,456,256	63,934	2,520,190	362,828	155,546	634,307	137,496	1,746,919	64.5	961,357	734,646	419,618
Louisiana, Arkansas & Texas.....Aug.	255	477,163	2,334	479,497	17,552	4,417	25,197	5,551	62,004	89.5	7,271	4,835	-2,289
Louisiana, Arkansas & Texas.....8 mos.	255	477,163	2,334	479,497	17,552	4,417	25,197	5,551	62,004	89.5	7,271	4,835	-2,289

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It was bought on Performance Records



THIS Elesco feed water heater was not bought merely *because* we said it would save 12 to 15 per cent of the fuel costs of this locomotive;

nor because we said it was the best locomotive feed water heater on the market;

nor because the heater has a minimum loss of heat transfer;

nor because the pump operates with a minimum of steam consumption—

N O !

It was bought because of actual performance records.

It was bought because it had demonstrated itself on almost 4,000 locomotives.

It was bought because this was in itself a very good reason for standardizing on the Elesco feed water heater.

WRITE FOR PARTICULARS

THE SUPERHEATER COMPANY

Representative of **AMERICAN THROTTLE COMPANY, INC.**

60 East 42nd Street
NEW YORK



A-813

Peoples Gas Building
CHICAGO

Canada: **THE SUPERHEATER COMPANY, LIMITED, Montreal**

Superheaters—Feed Water Heaters—Exhaust Steam Injectors—Superheated Steam Pyrometers—American Throttles.



Revenues and Expenses of Railways

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues				Operating expenses				Operating ratio	Net from operation		Net operating income, 1932
		Freight	Passenger	Total (inc. misc.)	Maintenance of way and structures	Equipment	Traffic	Trans- portation	General	Total	ratio	Operating income	Net railway operating income
Louisville & Nashville.....Aug.	5,121	\$5,600,114	\$394,236	\$6,349,676	\$628,558	\$1,354,822	\$150,553	\$2,032,925	\$259,625	\$4,463,865	70.3	\$1,885,811	\$1,608,091
.....8 mos.	5,147	36,737,711	2,873,311	42,833,131	4,735,380	9,115,624	1,323,163	15,107,342	2,078,277	32,596,814	70.1	10,236,317	7,443,212
Maine Central.....Aug.	1,046	715,116	95,839	911,033	140,039	153,343	12,008	309,665	63,279	631,512	71.5	239,321	172,103
.....8 mos.	1,106	5,511,768	6,857,472	933,405	1,049,446	1,049,446	85,696	2,526,187	299,806	4,913,581	71.6	1,943,890	1,567,795
Midland Valley.....Aug.	363	125,785	518	130,321	17,701	6,689	2,075	29,252	5,950	61,135	46.9	69,186	50,152
.....8 mos.	363	838,049	3,308	841,357	124,150	73,563	18,158	220,280	52,839	487,694	55.9	384,921	257,293
Minneapolis & St. Louis.....Aug.	1,627	4,572,995	113,005	4,730,228	108,849	1,038,942	203,641	3,317,648	30,903	596,327	80.2	146,901	88,715
.....8 mos.	1,627	4,572,995	113,005	4,730,228	108,849	1,038,942	203,641	3,317,648	30,903	596,327	80.2	146,901	88,715
Minn., St. Paul & S. S. Marie.....Aug.	4,315	1,971,554	135,448	2,287,579	268,816	367,708	63,762	750,560	112,986	1,570,798	68.7	716,781	409,321
.....8 mos.	4,326	12,306,823	701,483	14,186,890	1,980,104	2,736,272	489,302	5,748,004	865,035	11,848,805	83.5	2,338,085	1,110,431
Duluth, South Shore & Atlantic.....Aug.	563	202,823	9,898	238,117	35,677	33,920	5,278	66,847	5,065	146,763	61.6	91,354	73,068
.....8 mos.	562	1,067,959	73,279	1,263,247	228,524	238,992	43,711	522,881	46,474	1,082,100	85.7	181,447	74
Spokane International.....Aug.	163	42,423	1,515	48,077	15,284	4,899	1,983	19,386	4,181	45,733	95.1	2,344	-2,521
.....8 mos.	163	251,450	12,594	294,082	95,215	37,128	16,063	151,322	33,243	332,881	113.2	-38,799	-94,226
Mississippi Central.....Aug.	150	57,582	2,594	62,085	2,927	12,951	5,899	16,720	5,291	50,148	80.8	11,937	5,624
.....8 mos.	150	371,952	10,409	396,772	70,220	85,654	48,317	123,164	40,760	368,118	92.8	28,654	5,756
Missouri & North Arkansas.....Aug.	364	76,626	1,051	85,400	10,731	7,254	3,525	23,494	3,437	48,476	56.8	36,924	34,888
.....8 mos.	364	492,075	8,001	549,792	114,830	75,845	38,937	197,660	38,967	465,952	84.8	83,840	64,458
Missouri-Illinois.....Aug.	202	87,517	467	89,559	18,687	7,883	2,136	27,011	5,320	61,033	68.1	28,526	21,579
.....8 mos.	202	528,580	2,685	544,413	108,047	87,595	19,477	183,905	42,685	441,635	81.1	102,778	50,928
Missouri-Kansas-Texas Lines.....Aug.	3,293	1,868,030	171,871	2,247,483	282,023	355,548	156,831	729,361	143,429	1,683,020	74.9	564,463	257,781
.....8 mos.	3,293	13,045,677	1,180,956	15,839,866	2,130,611	2,593,202	863,166	5,648,087	1,109,923	12,463,422	78.7	3,374,444	1,842,361
Missouri Pacific.....Aug.	7,412	3,384,743	375,967	6,261,018	5,349,868	1,276,327	213,927	2,139,420	2,447,110	4,628,540	73.9	1,635,478	1,276,132
.....8 mos.	7,412	3,384,743	375,967	6,261,018	5,349,868	1,276,327	213,927	2,139,420	2,447,110	4,628,540	73.9	1,635,478	1,276,132
Gulf Coast Lines.....Aug.	1,800	570,288	28,417	639,564	118,315	130,931	39,545	198,594	40,868	527,347	82.45	112,217	62,086
.....8 mos.	1,802	5,062,771	225,954	5,613,878	829,424	988,340	309,189	1,795,212	354,527	4,259,368	75.87	1,354,510	952,169
International-Great Northern.....Aug.	1,159	750,179	60,845	890,245	136,849	177,664	24,569	330,824	42,075	721,577	81.05	168,668	130,051
.....8 mos.	1,159	7,556,465	401,195	8,583,587	1,064,004	1,428,868	205,299	2,928,706	349,528	6,033,034	70.29	2,550,553	2,250,972
San Antonio, Uvalde & Gulf.....Aug.	316	62,875	2,314	69,920	19,033	8,415	4,055	16,665	3,937	52,103	74.5	17,871	14,040
.....8 mos.	316	431,596	21,921	489,713	119,674	79,488	31,844	135,989	34,123	400,142	81.7	89,571	58,979
Mobile & Ohio.....Aug.	1,201	669,528	33,559	746,432	102,920	189,266	36,694	251,231	36,566	616,831	82.6	129,601	88,129
.....8 mos.	1,222	4,866,763	155,498	5,328,783	656,122	1,141,120	304,113	1,973,605	294,322	4,370,030	82.0	958,753	625,976
Monongahela.....Aug.	177	359,707	706	362,331	31,055	21,537	421	61,408	5,217	119,638	33.0	242,693	146,954
.....8 mos.	177	2,281,765	4,880	2,299,629	174,352	169,641	5,212	442,480	5,998	846,701	36.8	1,452,928	769,500
Monongahela Connecting.....Aug.	6	.....	.....	123,698	1,428	22,209	52	51,753	3,827	91,369	73.9	32,329	26,133
.....8 mos.	6	.....	.....	510,680	85,323	125,210	370	257,855	21,331	490,089	96.0	20,591	-16,902
Montour.....Aug.	57	182,075	.....	182,552	12,594	64,363	956	32,059	3,420	113,392	62.1	69,160	64,418
.....8 mos.	57	1,163,687	.....	1,172,974	94,989	318,433	9,156	227,988	50,323	700,889	59.8	472,085	448,178
Nashville, Chattanooga & St. Louis.....Aug.	1,203	893,150	74,889	1,059,560	151,069	293,483	50,726	385,798	52,588	939,514	88.7	120,046	81,550
.....8 mos.	1,203	7,072,763	496,176	8,362,491	1,115,612	1,899,020	433,227	3,091,326	429,772	7,006,031	83.8	1,356,460	1,071,330
Nevada Northern.....Aug.	165	17,805	353	21,491	8,732	3,988	642	6,280	2,980	22,622	105.2	-1,131	-8,402
.....8 mos.	165	132,855	8,198	170,785	68,033	31,661	5,596	53,940	26,039	187,269	109.6	-16,484	-75,491
Newburgh & South Shore.....Aug.	6	.....	.....	32,990	1,661	14,597	.....	15,895	4,091	36,244	109.9	-3,254	-11,428
.....8 mos.	6	.....	.....	312,535	22,980	132,674	.....	159,250	35,276	350,180	112.0	-37,645	-106,618
New Orleans Terminal.....Aug.	20	.....	.....	98,762	9,975	6,571	.....	27,250	1,002	44,798	45.4	53,964	42,058
.....8 mos.	20	.....	.....	867,516	66,397	43,987	.....	210,968	8,242	331,594	38.2	535,922	443,364
New York Central.....Aug.	11,433	19,049,245	5,214,988	27,423,036	2,633,311	5,677,562	520,896	8,943,474	970,278	19,094,240	69.6	8,328,806	5,865,404
.....8 mos.	11,433	127,969,533	33,686,764	184,762,893	15,767,993	37,381,891	3,845,425	66,612,754	7,850,863	133,822,696	72.4	50,940,197	31,346,230
Indiana Harbor Belt.....Aug.	120	.....	.....	712,494	50,000	80,000	3,356	270,236	18,253	429,930	60.3	282,564	230,818
.....8 mos.	120	.....	.....	4,980,381	265,000	485,000	25,087	1,939,848	139,818	2,915,373	58.5	2,065,008	1,669,832
Pittsburgh & Lake Erie.....Aug.	231	1,605,999	46,169	1,695,704	131,070	526,982	23,332	480,389	64,313	1,227,944	72.4	467,760	349,787
.....8 mos.	232	8,841,970	340,186	9,491,374	718,664	3,094,272	189,507	3,106,479	46,511	7,581,950	79.9	1,909,424	1,146,202
New York, Chicago & St. Louis.....Aug.	1,690	2,657,310	120,340	2,894,493	324,780	434,621	94,123	922,546	112,152	1,891,053	65.3	1,003,440	858,298
.....8 mos.	1,690	18,760,627	589,882	20,111,635	1,867,596	3,047,417	759,312	6,824,679	885,031	13,401,931	66.6	6,710,544	5,464,382
New York, New Haven & Hartford.....Aug.	2,067	3,707,690	1,692,685	6,034,888	679,273	1,042,410	69,089	2,139,599	213,112	4,242,514	70.3	1,792,374	1,416,389
.....8 mos.	2,068	25,391,475	13,303,151	43,874,391	5,048,903	7,271,744	587,084	16,496,022	1,820,003	32,114,488	73.2	11,759,903	8,727,883

Continued on next left-hand page



300 H. P.
Total Weight
131,000 lb.
Tractive Power, Starting,
39,300 lb.

ALCO DIESEL LOCOMOTIVES

THE Alco Diesel Locomotive is much more than just another Oil-Electric.

Designed and built by an organization which has been cooperating with railway officials on locomotive design, almost since railroads were new, it naturally followed that the fullest consideration was given to the railroad man's operating and maintenance problems.

Therefore, when considering this new class of motive power, do not overlook ease of operation and maintenance.

These are important and attractive features of the Alco Diesel Locomotive.

American Locomotive Company
30 Church Street New York N.Y.



600 H. P.
Total Weight
200,000 lb.
Tractive Power, Starting,
60,000 lb.

Revenues and Expenses of Railways

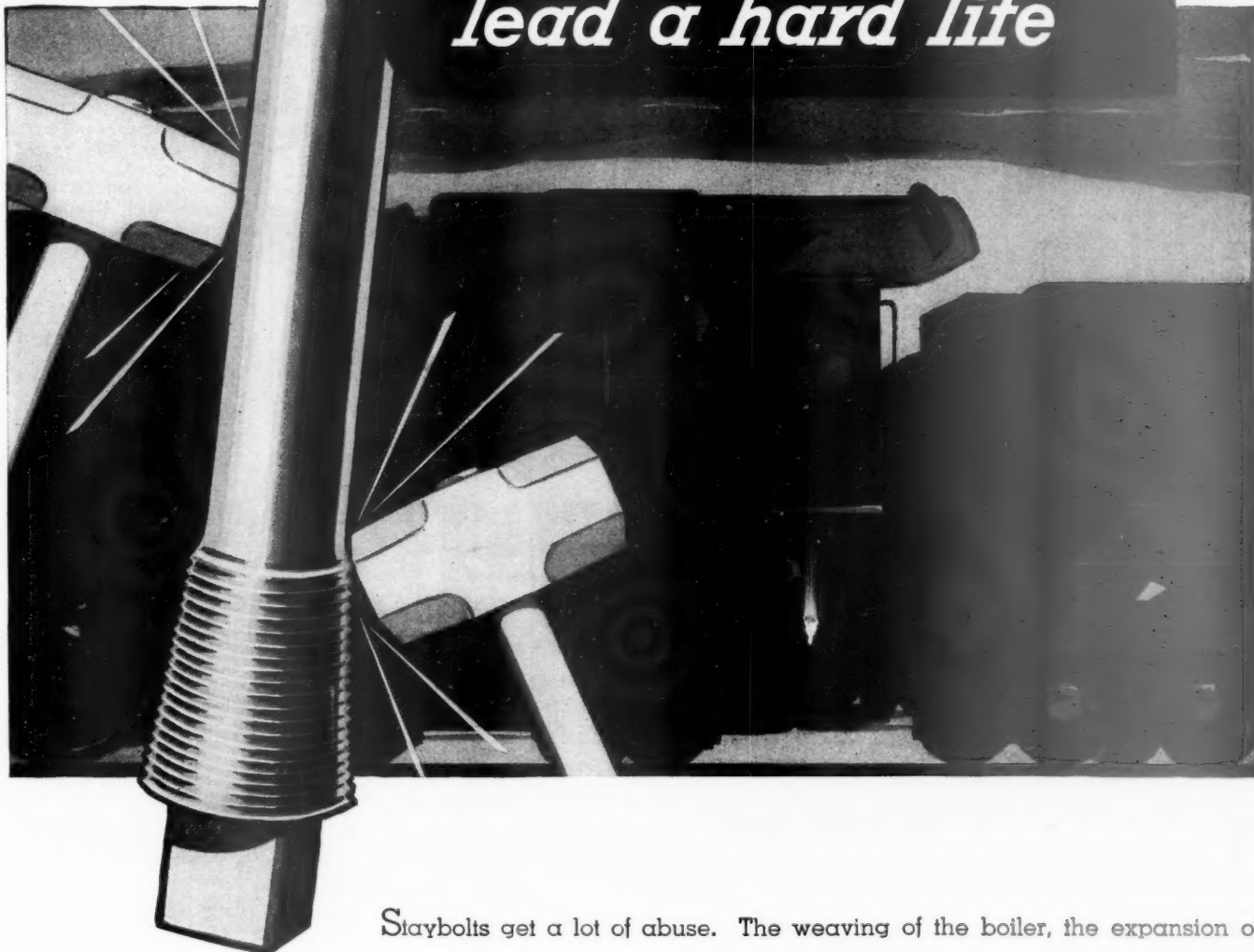
MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues				Operating expenses				Operating ratio	Net from operation	Operating income	Net railway operating income, 1932
		Freight	Passenger	Total (inc. misc.)	Maintenance of— Way and structures Equip- ment	Traffic	Trans- portation	General	Total				
New York Connecting.....Aug. 8 mos.	20	\$140,389	.....	\$148,159	\$8,563	.....	\$26,126	\$873	\$48,461	32.7	\$99,698	\$68,838	\$29,146
New York, Ontario & Western.....Aug. 8 mos.	20	1,808,068	.....	1,884,499	96,105	.....	210,147	7,115	371,466	19.7	1,513,033	1,591,313	932,209
New York, Ontario & Western.....Aug. 8 mos.	568	827,227	\$131,446	1,034,846	147,895	\$12,062	335,616	23,563	682,310	65.9	352,536	262,739	213,179
New York, Ontario & Western.....Aug. 8 mos.	568	5,454,664	390,028	6,511,831	1,116,602	98,670	2,445,271	188,207	4,597,742	70.6	1,914,089	1,588,032	1,238,875
Norfolk & Western.....Aug. 8 mos.	2,239	7,080,417	134,234	7,399,032	1,361,075	806,960	1,376,895	232,716	3,848,888	52.0	3,550,144	2,884,433	3,092,479
Norfolk & Western.....Aug. 8 mos.	2,232	41,960,969	912,579	44,241,437	4,465,170	876,341	9,995,445	1,707,655	25,510,128	57.7	18,731,009	13,662,630	14,494,256
Norfolk Southern.....Aug. 8 mos.	932	359,638	13,055	367,193	58,497	17,668	1,128,871	26,032	290,120	79.0	27,971	38,488	27,971
Norfolk Southern.....Aug. 8 mos.	932	2,723,029	78,037	2,935,012	547,485	150,887	1,128,871	184,670	2,484,679	84.7	450,333	142,564	25,423
Northern Pacific.....Aug. 8 mos.	6,747	4,287,738	307,530	4,960,851	462,121	149,656	1,497,480	243,680	3,346,969	67.5	1,613,882	1,060,957	1,360,844
Northern Pacific.....Aug. 8 mos.	6,741	24,988,672	2,082,950	29,732,442	3,769,738	1,187,061	11,379,081	1,996,679	26,095,359	87.8	3,637,083	1,472,641	1,472,641
Northwestern Pacific.....Aug. 8 mos.	382	199,343	93,845	324,869	47,571	4,139	1,131,330	12,549	240,339	74.0	84,530	67,438	54,691
Northwestern Pacific.....Aug. 8 mos.	410	943,360	651,745	1,823,619	366,981	36,917	1,028,645	113,170	1,797,286	98.4	26,333	-141,694	-218,303
Oklahoma City Ada-Notke.....Aug. 8 mos.	132	20,740	395	22,771	3,646	603	9,498	1,446	16,073	70.6	6,698	3,303	-3,111
Oklahoma City Ada-Notke.....Aug. 8 mos.	132	199,285	2,157	213,877	3,332	4,862	77,523	11,683	136,748	63.9	77,129	44,004	-8,726
Pennsylvania Railroad.....Aug. 8 mos.	10,549	25,269,646	4,835,429	32,900,785	3,197,562	500,598	10,021,673	1,245,882	21,745,309	66.1	11,155,476	8,329,466	7,201,507
Pennsylvania Railroad.....Aug. 8 mos.	10,803	156,669,907	33,712,214	211,547,420	16,999,613	4,049,879	73,567,731	9,937,732	147,496,745	69.7	64,050,675	45,038,259	37,383,999
Long Island.....Aug. 8 mos.	399	486,793	1,804,982	2,405,676	155,369	12,030	859,603	52,387	1,392,565	57.9	1,013,111	709,358	520,726
Long Island.....Aug. 8 mos.	399	3,765,946	11,673,900	16,251,130	2,203,386	104,929	6,665,699	426,492	10,525,511	64.8	5,725,619	4,111,917	2,708,003
Peoria & Pekin Union.....Aug. 8 mos.	18	77,806	.....	86,232	8,039	1,889	34,197	7,363	62,876	72.9	23,356	7,928	20,274
Pere Marquette.....Aug. 8 mos.	2,288	1,907,622	97,243	2,127,594	256,879	57,097	731,821	87,937	1,591,454	74.8	536,140	435,808	330,938
Pittsburgh & Shawmut.....Aug. 8 mos.	2,304	13,552,235	446,347	14,601,650	1,837,694	445,886	5,527,277	702,918	11,922,445	81.7	2,679,185	1,836,247	1,101,829
Pittsburgh & Shawmut.....Aug. 8 mos.	102	89,475	177	91,780	8,094	1,309	21,562	3,495	52,982	57.7	38,798	38,591	39,645
Pittsburgh & Shawmut.....Aug. 8 mos.	102	430,493	3,401	440,711	67,038	10,699	127,502	28,594	300,955	81.9	79,756	75,124	75,620
Pittsburgh & West Virginia.....Aug. 8 mos.	138	263,847	.....	272,616	21,584	11,850	45,753	13,882	162,918	59.8	109,698	92,271	136,086
Pittsburgh & West Virginia.....Aug. 8 mos.	138	1,650,882	.....	1,789,961	108,504	398,585	323,779	99,158	1,128,195	64.9	610,766	432,432	653,216
Pittsburgh, Shawmut & Northern.....Aug. 8 mos.	195	106,415	170	106,636	18,687	1,239	33,977	6,062	80,141	73.1	29,495	27,231	12,815
Penn.-Reading Seashore Lines.....Aug. 8 mos.	258	923,626	1,309,154	2,332,854	245,548	302,393	27,344	1,438,490	71,557	2,088,167	85.3	90,071	36,462
Reading.....Aug. 8 mos.	1,461	4,112,863	215,404	4,537,416	309,058	716,678	1,510,557	185,985	2,806,932	93.6	1,730,484	1,456,374	1,478,689
Reading.....Aug. 8 mos.	1,461	28,471,065	1,811,508	32,170,636	1,889,979	5,719,125	11,765,301	1,466,783	21,531,206	66.9	10,637,430	8,449,655	6,172,282
Penn.-Reading Seashore Lines.....Aug. 8 mos.	258	923,626	1,309,154	2,332,854	245,548	302,393	27,344	1,438,490	71,557	2,088,167	85.3	90,071	36,462
Richmond, Fredericksburg & Potomac.....Aug. 8 mos.	117	225,348	76,967	379,480	44,625	99,274	7,581	168,967	355,032	93.6	24,448	7,555	-4,272
Richmond, Fredericksburg & Potomac.....Aug. 8 mos.	117	2,508,164	895,964	4,206,646	761,005	64,310	1,638,095	259,519	3,169,673	75.3	1,036,973	710,185	372,117
Rutland.....Aug. 8 mos.	413	199,048	40,797	319,268	50,324	9,740	125,012	13,109	260,985	81.7	38,283	38,362	51,223
Rutland.....Aug. 8 mos.	413	1,437,143	244,828	2,330,655	386,823	426,897	997,153	106,328	1,995,761	89.5	234,894	73,231	173,974
St. Louis San Francisco.....Aug. 8 mos.	5,266	2,985,844	238,745	3,482,095	584,339	837,820	1,095,235	140,119	2,760,214	79.3	721,881	683,474	558,039
St. Louis San Francisco.....Aug. 8 mos.	5,266	21,880,789	1,497,135	25,459,329	4,207,744	5,949,539	8,605,309	1,122,446	20,638,780	81.1	4,820,549	2,550,350	2,203,895
Fort Worth & Rio Grande.....Aug. 8 mos.	233	211,785	9,407	264,618	133,121	122,559	1,927	27,580	475,096	179.5	-210,478	-243,032	-294,550
St. Louis, San Francisco & Texas.....Aug. 8 mos.	262	91,884	730	95,468	18,910	5,168	33,602	7,888	90,305	94.6	5,163	1,194	-26,037
St. Louis, San Francisco & Texas.....Aug. 8 mos.	262	647,029	5,059	677,253	24,799	38,968	268,286	58,852	692,927	102.3	15,674	47,936	-262,172
St. Louis Southwestern Lines.....Aug. 8 mos.	1,884	1,022,094	16,381	1,084,917	129,555	66,572	345,133	58,885	774,036	71.3	310,881	229,260	169,491
St. Louis Southwestern Lines.....Aug. 8 mos.	1,899	8,039,142	115,358	8,528,420	934,931	1,177,779	2,735,533	511,861	5,948,547	69.7	2,579,873	1,960,600	1,035,234
San Diego & Arizona Eastern.....Aug. 8 mos.	155	30,115	3,067	34,914	7,948	1,724	13,806	3,954	35,986	103.1	-1,072	-2,760	-662
San Diego & Arizona Eastern.....Aug. 8 mos.	155	265,746	36,908	316,374	73,452	69,503	129,976	35,377	327,447	103.5	31,000	32,000	23,345
Seaboard Air Line.....Aug. 8 mos.	4,378	1,846,651	154,339	2,200,857	361,808	478,227	865,014	129,931	1,972,721	89.6	4,012,503	2,382,909	1,720,406
Seaboard Air Line.....Aug. 8 mos.	4,378	17,708,638	1,558,424	21,317,863	3,205,519	4,171,018	7,672,688	1,030,925	17,305,360	81.2	2,829,909	2,382,909	1,720,406
Southern Railway.....Aug. 8 mos.	6,653	5,532,758	621,048	6,699,888	753,700	1,189,164	2,303,157	249,896	4,668,539	69.7	2,031,349	1,531,443	1,423,333
Southern Railway.....Aug. 8 mos.	6,653	42,270,978	4,441,203	50,221,905	5,601,824	9,206,926	17,846,306	1,990,548	36,037,556	70.8	14,884,349	10,969,411	9,770,105
Alabama Great Southern.....Aug. 8 mos.	315	363,016	43,016	435,962	52,087	85,085	1,115,4	113,861	2,255,436	77.1	668,578	382,667	343,849
Alabama Great Southern.....Aug. 8 mos.	315	2,431,386	259,510	2,924,014	415,196	656,390	976,076	113,861	2,255,436	77.1	668,578	382,667	343,849
Cinn., New Orleans & Tex. Pacific.....Aug. 8 mos.	336	1,041,968	78,825	1,175,429	104,333	179,494	265,252	36,125	614,713	52.3	560,716	462,390	433,863
Cinn., New Orleans & Tex. Pacific.....Aug. 8 mos.	336	7,036,028	421,162	7,890,284	806,300	1,407,237	1,970,716	292,680	4,687,755	59.4	3,205,529	2,578,489	2,409,612
Georgia Southern & Florida.....Aug. 8 mos.	397	103,399	14,291	132,886	31,547	34,460	59,217	2,272	130,594	98.3	2,292	-10,422	-6,434
Georgia Southern & Florida.....Aug. 8 mos.	397	831,837	156,041	1,124,585	206,304	265,604	432,305	18,042	955,880	84.7	171,705	57,746	88,086

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STAYBOLTS

lead a hard life



Staybolts get a lot of abuse. The weaving of the boiler, the expansion of the firebox and a constant vibration under tensile stress combine to produce exceptional fatigue. » » » In addition, corrosion is a constant source of trouble. » » » Now, thanks to many years of metallurgical research, Republic has perfected staybolt materials that possess all the qualities needed in this severe service. » » » Corrosion-resistance, added strength and toughness are all found in Agathon alloy staybolts. » » » Service has proved their superiority. Specify them.

CENTRAL ALLOY DIVISION, MASSILLON, OHIO



REPUBLIC STEEL
C O R P O R A T I O N
GENERAL OFFICES  YOUNGSTOWN, OHIO

Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Staybolts, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Agathon Iron for pins and bushings • Agathon Staybolt Iron • Climax Steel Staybolts • Upson Bolts and Nuts • Track Material, Maney Guard Rail Assemblies • Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel. The Birdsboro Steel Foundry & Machine Company of Birdsboro, Pa. has manufactured and is prepared to supply under license, Toncan Copper Molybdenum Iron castings for locomotives.



Revenues and Expenses of Railways

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues				Operating expenses				Operating ratio	Net from operation	Net railway income	Net railway operating income, 1932
		Freight	Passenger	Total (inc. misc.)	Maintenance of way and structures	Equipment	Traffic	Trans- portation	General				
New Orleans & Northeastern.....Aug.	204	\$154,408	\$19,381	\$173,789	\$29,328	\$36,082	\$6,141	\$59,296	\$9,010	76.3	\$141,199	\$6,985	\$31,524
8 mos.....Aug.	204	1,018,335	116,277	1,134,612	204,658	298,356	42,942	468,288	68,877	89.2	1,093,192	245,189	319,849
Northern Alabama.....Aug.	99	39,557	1,453	41,010	11,016	1,517	897	14,136	1,713	68.7	29,279	13,222	14,216
8 mos.....Aug.	99	320,354	9,316	329,670	68,706	10,209	8,525	110,877	13,658	62.1	211,975	93,463	90,872
Southern Pacific.....Aug.	9,011	6,584,883	1,326,423	7,911,306	796,488	1,657,358	259,848	3,105,312	503,212	74.1	6,487,995	1,116,015	673,422
8 mos.....Aug.	9,077	45,346,613	9,988,510	55,335,123	5,987,202	11,497,566	2,090,736	22,893,497	4,255,564	78.1	52,348,385	3,178,629	3,892,938
Southern Pacific Steamship Lines.....Aug.	...	424,384	24,920	449,304	13,820	98,612	16,113	266,079	18,683	88.6	413,307	53,318	70,337
8 mos.....Aug.	...	2,575,165	99,858	2,675,023	103,833	802,133	129,764	1,932,830	162,147	111.4	3,130,707	330,398	752,064
Texas & New Orleans.....Aug.	4,487	1,963,412	222,685	2,186,097	248,165	502,568	104,909	838,406	195,562	80.0	1,985,773	263,173	98,536
8 mos.....Aug.	4,515	14,903,922	1,540,939	16,444,861	2,667,809	3,842,523	896,003	6,723,005	1,682,015	85.2	15,896,528	922,789	1,465,468
Spokane, Portland & Seattle.....Aug.	552	365,589	47,626	413,215	35,025	43,584	5,994	132,387	15,978	51.7	219,206	141,605	62,181
8 mos.....Aug.	552	2,391,773	260,276	2,652,049	270,805	356,211	48,203	998,304	138,471	61.6	1,819,813	520,082	164,586
Tennessee Central.....Aug.	287	178,359	4,118	182,477	28,015	35,515	4,567	55,423	8,816	63.6	122,259	66,561	11,641
8 mos.....Aug.	290	1,162,915	29,703	1,192,618	212,681	185,353	38,846	426,443	78,397	74.6	941,369	297,972	90,964
Terminal R. R. Assn. of St. Louis.....Aug.	55	.....	.....	.....	43,500	39,054	3,072	239,507	13,349	59.1	340,722	208,397	79,664
8 mos.....Aug.	55	.....	.....	.....	298,847	234,645	25,122	1,711,870	124,286	59.2	2,412,785	1,492,645	787,192
Texas & Pacific.....Aug.	1,950	1,298,068	141,473	1,439,541	168,719	260,853	63,385	486,299	103,515	67.5	1,099,375	427,980	325,208
8 mos.....Aug.	1,950	10,655,143	1,100,671	11,755,814	1,343,544	2,355,282	488,729	4,118,281	831,457	70.0	9,253,533	2,153,628	1,934,201
Texas Mexican.....Aug.	162	41,810	583	42,393	10,107	12,425	2,215	23,256	6,637	115.3	35,335	15,346	18,914
8 mos.....Aug.	162	384,299	4,755	389,054	75,605	101,573	23,238	196,604	53,704	104.8	448,816	82,377	15,439
Toledo, Peoria & Western.....Aug.	239	156,187	22	156,209	42,345	11,710	14,480	41,153	7,087	73.6	116,775	22,201	9,299
8 mos.....Aug.	239	1,078,634	194	1,078,828	266,408	83,533	110,571	289,080	61,783	74.1	881,325	154,059	48,130
Toledo Terminal.....Aug.	28	.....	.....	.....	3,358	6,242	381	22,889	4,091	57.2	27,708	35,464	5,056
8 mos.....Aug.	28	.....	.....	.....	499,171	61,688	3,457	212,193	31,961	68.7	342,786	96,697	105,199
Union Railroad of Pennsylvania.....Aug.	45	.....	.....	.....	629,594	111,559	176	167,753	14,086	57.8	364,191	258,389	309,203
8 mos.....Aug.	45	.....	.....	.....	2,082,353	724,163	995	794,320	110,351	93.2	1,940,765	88,099	534,200
Union Pacific.....Aug.	3,767	4,735,753	562,587	5,298,340	500,217	1,116,690	98,145	1,563,097	239,281	62.1	3,588,872	1,282,241	1,646,467
8 mos.....Aug.	3,767	31,490,611	3,510,223	35,000,834	3,054,561	7,806,630	843,398	11,529,918	2,154,436	67.0	25,841,141	9,104,530	6,948,368
Oregon Short Line.....Aug.	2,504	1,586,269	110,221	1,696,490	204,595	215,242	26,715	560,564	85,308	61.4	1,111,007	418,329	223,875
8 mos.....Aug.	2,504	10,307,835	835,946	11,143,781	1,408,444	1,713,576	245,426	4,063,820	721,722	68.8	3,789,779	1,751,648	556,670
Oregon-Wash. R. R. & Nav. Co.....Aug.	2,316	1,143,195	93,120	1,236,315	1,384,280	1,799,996	46,734	484,406	80,001	68.1	943,090	291,058	82,016
8 mos.....Aug.	2,316	6,742,210	653,079	7,395,289	840,828	1,143,456	375,629	3,470,497	683,060	82.9	6,974,147	332,589	1,183,649
Los Angeles & Salt Lake.....Aug.	1,248	918,038	132,105	1,050,143	127,504	176,465	38,302	343,374	54,323	65.9	769,864	264,984	217,254
8 mos.....Aug.	1,248	7,064,689	964,861	8,029,550	1,113,772	1,343,632	336,271	2,725,666	464,334	70.6	6,178,222	1,598,024	1,033,899
St. Joseph & Grand Island.....Aug.	258	216,433	2,531	218,964	26,901	22,183	2,071	69,846	10,350	57.6	131,539	76,844	16,780
8 mos.....Aug.	258	1,518,056	20,016	1,538,072	190,452	215,552	17,579	488,276	95,060	63.0	1,008,438	487,922	169,022
Utah.....Aug.	111	56,636	.....	56,636	9,753	19,631	561	13,734	4,677	85.3	48,356	8,346	16,669
8 mos.....Aug.	111	604,410	.....	604,410	81,061	164,400	3,904	138,919	39,317	70.3	427,362	117,197	5,697
Virginian.....Aug.	619	1,209,348	6,471	1,215,819	1,042,162	1,434,000	13,626	206,207	24,902	44.4	702,772	552,772	405,188
8 mos.....Aug.	611	8,409,475	40,983	8,450,458	813,368	1,568,878	127,392	1,606,259	230,464	49.4	4,448,955	3,338,857	3,156,281
Wabash.....Aug.	2,465	2,911,225	222,648	3,133,873	455,216	570,528	129,558	1,205,500	126,680	74.8	2,498,031	671,192	220,662
8 mos.....Aug.	2,478	20,915,545	1,304,657	22,220,202	3,183,862	3,968,367	1,042,195	9,381,826	982,567	77.9	18,619,761	3,814,996	1,127,957
Ann Arbor.....Aug.	293	274,609	3,857	278,466	29,870	46,269	10,735	109,388	9,608	69.7	206,381	89,837	8,818
8 mos.....Aug.	293	1,836,785	16,997	1,853,782	214,818	351,620	85,185	822,026	75,759	80.5	1,550,398	376,334	33,943
Western Maryland.....Aug.	891	1,171,710	10,830	1,182,540	173,362	252,535	30,882	279,850	34,980	63.7	773,612	371,175	338,806
8 mos.....Aug.	891	7,527,978	62,713	7,590,691	1,042,394	1,433,556	249,222	1,996,637	287,195	63.8	5,030,679	2,293,086	2,151,085
Western Pacific.....Aug.	1,212	1,003,331	33,690	1,037,021	178,831	158,237	56,954	342,757	39,049	73.9	283,781	211,431	96,439
8 mos.....Aug.	1,211	5,967,171	196,175	6,163,346	1,080,201	1,291,393	442,284	2,492,450	282,885	88.3	757,673	141,143	65,696
Wheeling & Lake Erie.....Aug.	511	1,178,059	1,529	1,179,588	115,378	299,015	26,333	316,032	23,234	61.3	779,962	367,582	154,887
8 mos.....Aug.	511	6,527,879	11,873	6,539,752	675,767	1,824,294	208,761	1,917,060	200,075	69.5	4,825,346	1,371,311	132,222
Wichita Falls & Southern.....Aug.	203	40,770	33	40,803	8,825	6,518	1,589	11,778	3,165	75.3	7,500	7,500	5,251
8 mos.....Aug.	203	342,529	230	342,759	70,135	54,992	13,360	99,227	28,931	74.7	266,645	67,546	30,150